Now Arriving: City 17 Vignette
Marc Laidlaw

A story fragment written and handed out to the *Half-Life 2* development team for the purpose of conveying a specific sense of atmosphere and general ideas for locations

NOW ARRIVING: CITY 17

Phosphenes flare across his eyelids. Sissses of decompression. And then a sudden chill.

Chill...at least it is a sensation. So hes felt nothing for...how long now? Has he been sleeping? Even in sleep one imagines sensations: sights, sounds, tastes. But for Gordon Freeman, for so long, there has been nothing. Not even sleep. Something deeper. Darker. Something so numbing that this brush of icelike vapor feels like the warmth of dawn.

Brighter now. Something moving out there. Someone. More sensations joining in the mix. Pain flooding back into his limbs. He would rub his hands, rub the feeling back into them, but he cannot be sure of their location. It's not completely reassuring to know he has a body into which this pain can creep. Less reassuring is the voice that crawls inside him, stealthy as the hiss of icy steam.

"Rise and shine, Gordon Freeman. I do believe I've kept you waiting long enough."

That voice...and somewhere, a blurred shape emerging from the darkness. A withered face, narrow eyes, a visage that seems simultaneously paralyzed and possessed by erratic tics that hint at extreme senility or neural damage. It floats in the vapor, blurred at the edges, seeming insubstantial. He has heard the voice somewhere before...somewhen.

"Ten years, Mr. Freeman. It won't seem that way to you, of course. But ten years is a long time. Long enough for humanity to swallow its pride and begin to accept its common fate. Long enough for your fellow man to develop callousses against the master's collar. Long enough for the first scars of whiplash to begin to heal. Long enough to forget how things used to be."

There was a ticking sound now, a low drumming clatter. The voice was beginning to fade, the face receding. Sensation solidified into substance.

"But you won't have forgotten, Mr. Freeman. You still remember how the air used to taste. You remember how freedom felt. You remember...the sky."

And it was gone. A hard surface beneath him. The clattering sound sprang loud in his ears and he knew it as the sound of a train jammering over tracks.

"Hey, buddy..."

He opened his eyes. A face--not the strangely familiar one seen through mist, but a stranger bending over him. He sat bolt upright, startling the other man, his fellow passenger. Swinging around in his seat, casting wildly around him. It was a train car, and for a moment it overlapped in his memory with another train, in another time. Had any time passed? How had he come here?

"Mister, you can't ride around like that," the man was saying, watching him with concern. His voice was an urgent whisper. "Where's your mask? Take one step outside without it, you'll be coughing up bloody foam. It can kill you that fast. Here, look, I've got a spare. Can't be too careful. I had one fail on me once, and I've carried an extra ever since. Took some real damage that time. I hope I don't get in trouble for this, but you need it more than I do. Come on...train'll be coming into City 17 any minute now. Get this on."

He found he could hardly raise his hands. Life was slow in returning to them. As he tried to get his bearings, the stranger slipped a mask over his face, let the straps fall tight behind his head. A taste of stale carbon, and a moment that felt like suffocation. Then he began to calm down...reminded himself to think, study, plan his moves. Gordon peered out through the slightly rounded goggles at the dilapidated car.

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Torn seat cushions; dingy light fixtures, half of them burned out; the floor strewn with cinders and sawdust and crushed cigarette butts; brushed aluminum panels showing marks of peeled-off advertisements. Here and there were posters of a solemn face, owl-eyed, watching over the passengers. Always the same expression. Always some variant of the same brief message: THE CONSUL SAYS…RELAX. THE CONSUL SAYS…REPORT.

"There you go."

The stranger fell back in the opposite seat, across the car, looking relieved and smiling slightly. Beyond him, the windows opened onto a bleated landscape. Wrack and ruin, desolation, shattered shards of a half-known landscape that only partly resembled anything he had seen before. It was as if the world he had known, the former world, had been lifted up entire and dropped from a great height. Crushed buildings; teetering spikes with frayed wires dangling from them. Fat, bloated trees that seemed to snatch and sniff at the train, as if sculling dusty plankton from the slipstream.

"Name's Samuel, by the way. Samuel G-11783RF, if you want to be formal. Came through here, saw you laid out like that on the bench, I thought you'd already bought it. Don't know how they'd let you on the Express without a mask anyway. You must've been working in a dome, right? Out in the Waste? We were wondering why they'd stop the Express out in the middle of nowhere like that—never seen that before. Are you from City 17 originally? I got my Notice a couple days ago: Shift to 17. Same old game. Shuffle the population, keep 'em confused. Spent my last trimester in 49. I've never been in the same zone more than six months. 17's supposed to be nice enough. I hear the Consul's been stationed there for the time being. Might even get a look at him in person. Some people still hate him, but I say…how can you hold it against him? It was strike a deal or lose everything, right? We owe him big-time, the way I see it. I'd sure like to see him in person. Hey…there it is. Seventeen."

Gordon shifted, looking out the window behind him. Something immense sprawled on the horizon, a shadow glimpsed through shifting gases like smoke perpetually rising from the ruins, as if they harbored a fire that could never be extinguished.

A city.

Layered towers paled into distance, located somewhere beyond the tangled sprawl of debris that made a menace of the landscape. Tiers of buildings of uncertain age and architecture rose in ranks, stairlike—a self-contained metropolis, sketched in acid mist. Beyond those, harder to see, an immense irregular spire with its tip lost in the fumes that hid the heavens.

Samuel said, "I've gotta say…it looks a lot like 49. And 40 before that. They all look pretty much alike from this distance. Only when you get into them can you start to get an idea of how the place looked before…you know. Just *before*."

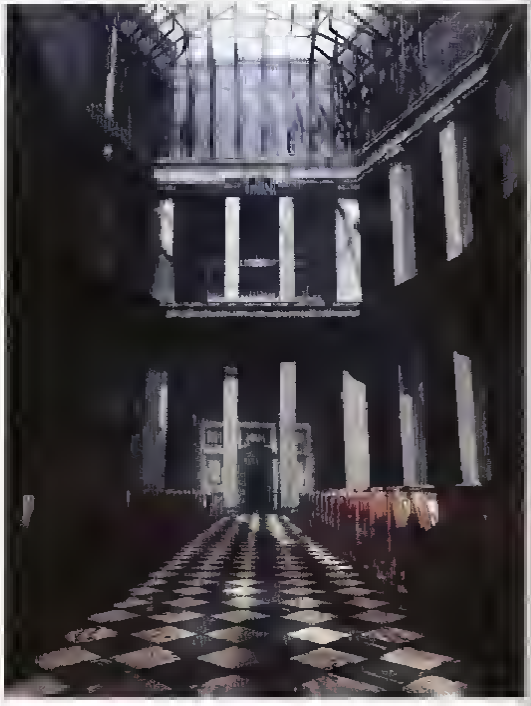
Gordon didn't see the tunnel coming. For a moment he thought the smoke had thickened so suddenly it had put out all light; but the sound of the train closed in around them, trapping them in a tube of darkness. Not long after that, a few dim lights flickered past, casting their wan glow on a grey amalgam of broken rock and cinderblock crammed together with bits of scrap metal. He thought he saw a human femur jutting from the wall; a rounded socket that could have been part of a skull. They passed through a portal of sharpened steel, razor edged doors retracting for the train, and the walls became smooth, dark, regular. And then the wheels were screaming. The train seemed to sway on the track as it started to brake. Lights flared ahead, space opened around them, and they floated into the station.

"Now arriving," said the train. "City 17."

Defining City 17
Viktor Antonov

In setting a design style for the game s main setting the fictional City 17, the process was based on the actual evolution of some European cities. The art team began with 19th-century architecture, and on this foundation added building styles from the 1930s, 1940s, and eventually 1970s. When enough realism was achieved, it was time to add the alien touch, much like the Combine putting its own stamp on human civilization.

"One of the reasons that we liked Eastern Europe as a setting was that it represents the collision of the old and the new in a way that is difficult to capture in the United States. You go over there, and you have this collision between all of these things: the new architecture, the old architecture, the fall of communism... there's a sense of this strongly-grounded historical place. We left out the gothic themes associated with Prague and vampires and looked into a different aspect of the region."
- Viktor Antonov



Half-Life was very stylized both because of the medium and because of the way the game was built. We had to deliberately choose a level of stylization. We could have done 100 percent realistic, but that wasn't really interesting to us. We wanted to give it a little twist, an abstract and surreal feel." - Viktor Antonov

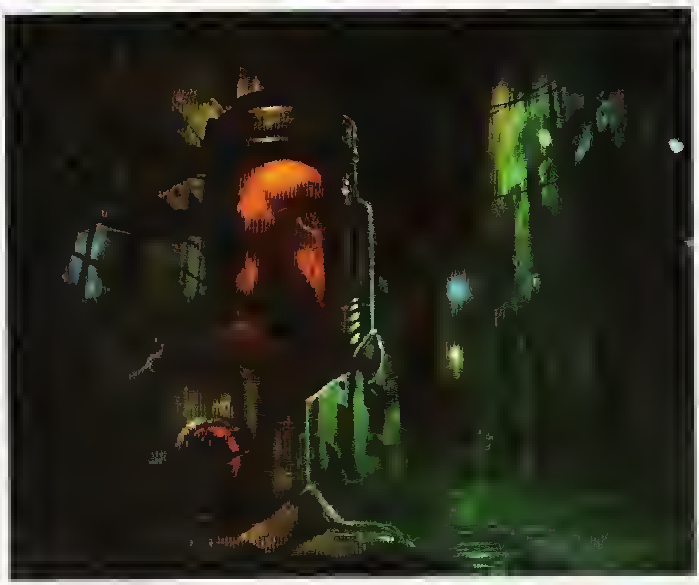
City 17
Viktor Antonov

Gathering photographic reference material from Bulgaria, Russia, and Romania was only the beginning. Nothing went into the game without being reworked by artists, to enhance the broader visual themes.

City 17, as laid out in Valve's Hammer level editor. This shows the path from the Trainstation to the Citadel, but progress in the game is never straightforward. Gameplay is deepened by imposing interesting obstacles, and forcing the player through intricate paths.

Early Glimpses of City 17
Dhabih Eng

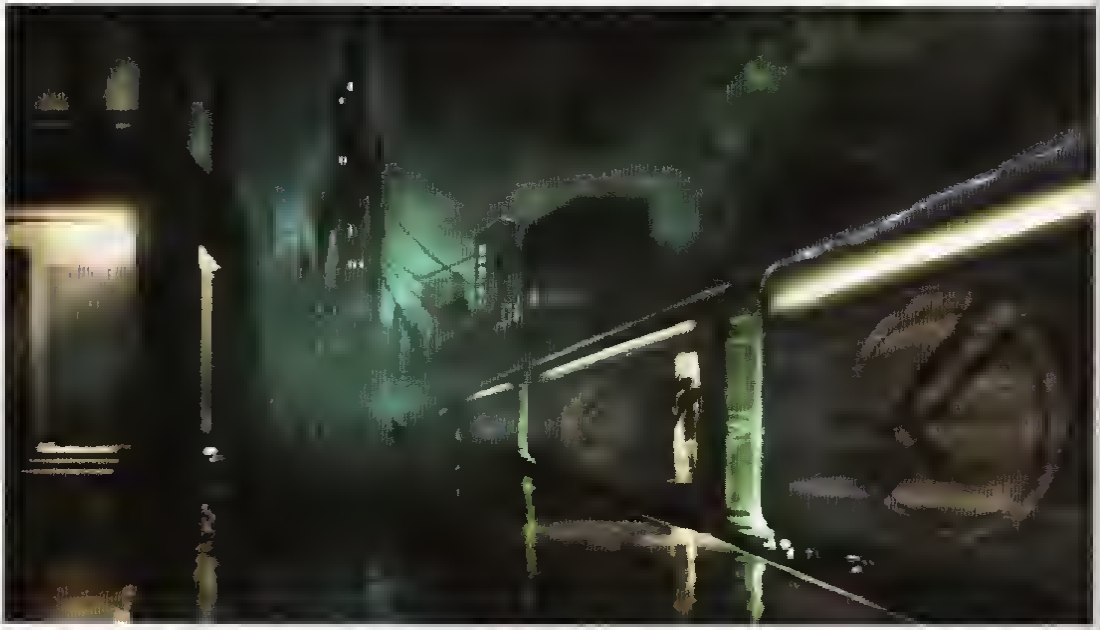
Concept sketch (above) for a gloomy street that eventually became the Trainstation Plaza. The emphasis was on an oppressive mood, essentially timeless, but with futuristic elements. Originally, monitors for Doctor Breen's broadcasts were designed in cluster-like compound eyes (right).



Combine Factories
Viktor Antonov & Dhabih Eng

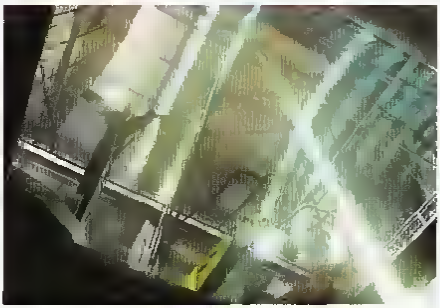
Various views of human servitude under the Combine. A vast stenographer's chasm (upper left) was an attempt to create a nightmarish working environment, but it proved bereft of gameplay and was situated in a part of City 17 that was trimmed early on.

The Child Factory (bottom left) never progressed beyond rough prototypes. Child citizens were also prototyped at one point, but eventually it became clear that the Combine had suppressed the human reproductive cycle for many years. The absence of children became a minor theme of the game, and the Child Factory was rendered irrelevant. The Vorti-Cells (right) were used as stations siphoning power from trapped Vortigaunts as Gordon attempted to free them.



Invasion Technology
Viktor Antonov & Dhabih Eng

Artists and animators worked together to explore possible types of Combine technology, pursuing a number of smoothly animated, highly articulated machines for gates, bridges, and walls. The most notable example of this technology to survive in the final game is the array of huge Combine walls, which smash through buildings and chew up streets along the player's route.



Manhack Arcade

Originally, the flying Manhacks were intended to be under the control of game-playing citizens who believed they were playing a video game rather than hunting fugitive citizens. Like many early gameplay ideas, it sounded good on paper but proved to be overly complex and not very fun.

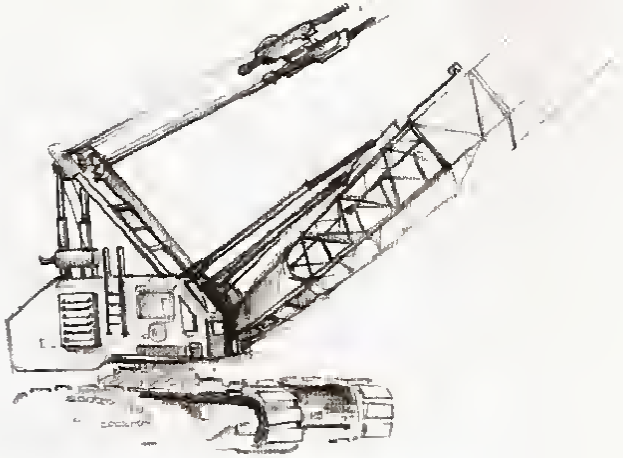
An early concept of Gordon Freeman arriving at the Citadel's lower entrance.

The Air Exchange
Viktor Antonov

At one point conceived as the turning point for Gordon's journey, a huge atmospheric reprocessing plant was there to be sabotaged and trigger the human uprising. This stage of the game was eventually played out in Nova Prospekt

Wasteland
Viktor Antonov

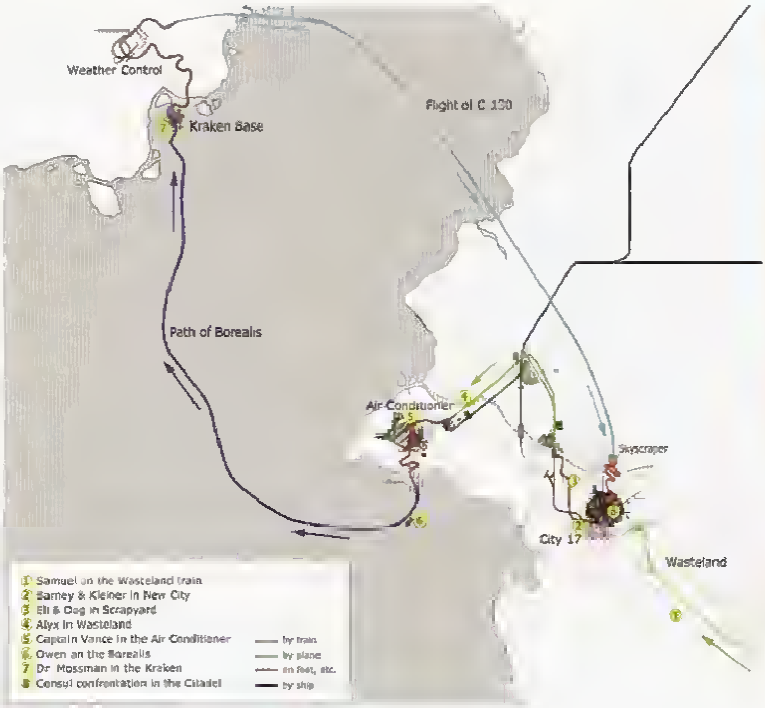
Nothing changed more in the process of developing *HL2* than concepts of what lay outside the walls of City 17. Valve experimented with concepts ranging from a vast Scrapland full of junked military machines, to a dried seafloor, with the ocean draining away into a vast teleport "drain." The uniting thread was to be a railroad linking City 17 to an outlying complex known variously as the Air Exchange, the Depot, the Gulag, and finally Nova Prospekt. While everything else changed, the railroad theme remained constant.



The Coast

Early resource gathering expeditions led artists and level designers to aircraft carriers shipbuilding yards, and arctic research vessels Some of this material ended up scattered along the Coast during the second day of Gordon Freeman's journey, but much more remains ready to be exploited in further adventures

"When it came time to gather reference for the magnetic crane I got my camera and a friend and I drove down to west Seattle where there are a number of them For the crane interior I used the inside of a bulldozer and the reference was complete " - Laura Dubuk



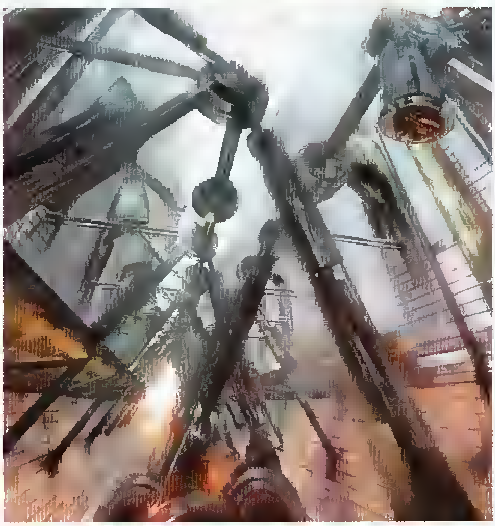
Striking a Balance
Viktor Antonov

A map of early *Half-Life 2* geography (above)

"There is a lot of value in refinement. There's an aggressive statement of this principle which isn't entirely true but it's still interesting. It doesn't matter what we cut, so long as we cut it and it gives us the time to focus on other things because any of the options will be bad unless they're finished and any of them will be good if they are finished. The key thing is not which things we decide to focus on, but that we focus on them and we've seen that over and over with weapons and monsters and levels. One of our worst enemies is trying to do too much rather than narrowing our focus and whenever we narrow it, that set of interesting problems gets figured out and interesting ways of using that creation become obvious. Doing things halfway is the greatest enemy of creativity both on the team and for the player."
– Gabe Newell

Air Exchange Interior
Viktor Antonov

Detailed scenes from the Air Exchange. This vast industrial nightmare was prototyped, but never finalized, in order to let the team concentrate on areas that were proving more fruitful for gameplay



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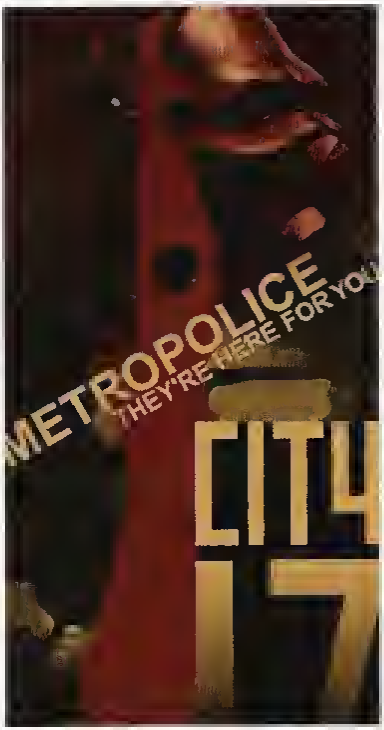
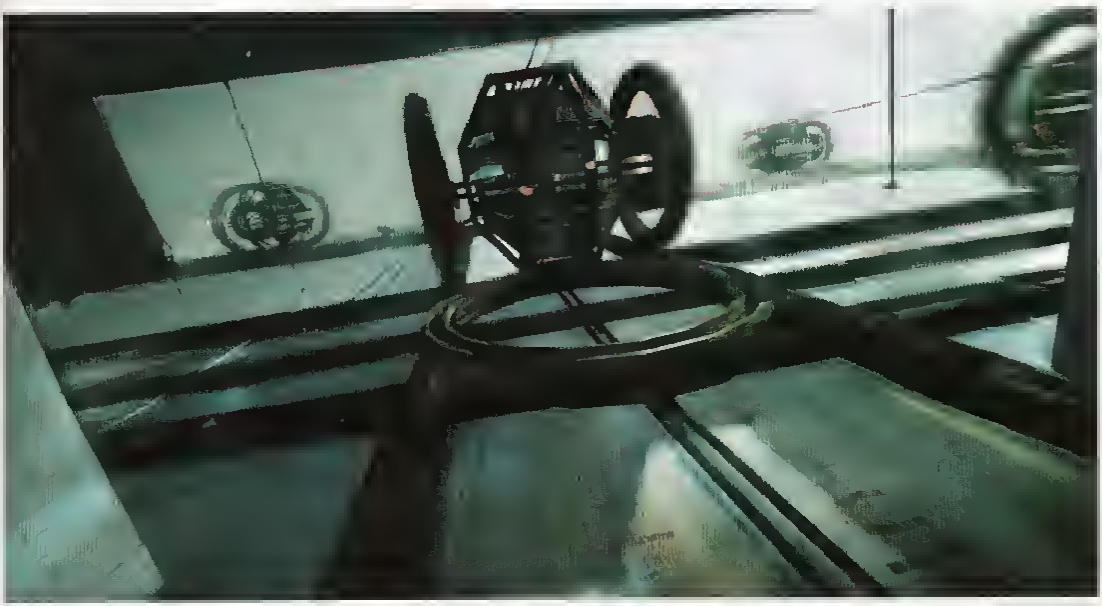
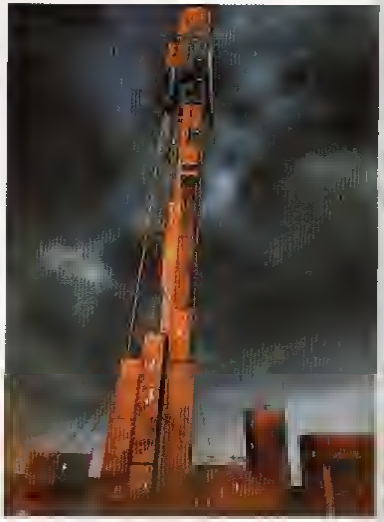
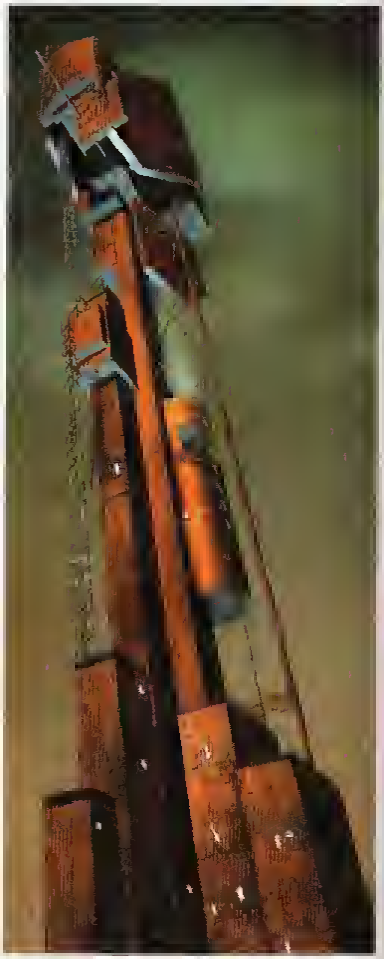


Combine Propaganda
Randy Lundeen

"We made periodic attempts to create and scatter Combine propaganda throughout City 17. It was eventually decided that most of the posters detracted from the atmosphere and were doing the work of a sledgehammer where tweezers were required. Also, it was fairly obvious that the Combine didn't need to rely on subtle messaging to achieve its ends." - Randy Lundeen







Combine Technology
Viktor Antonov

Several views of an Air Exchange industrial tower show early attempts to develop a distinctive design language for the Combine, which would be echoed in all its other creatures. Note the use of asymmetry, an unsettling approach to pattern, and a few massive shapes that bespeak terrifyingly efficient mass production facilities. From a gameplay point of view, the player was intended to fight his way to the top of this tower, then take a plunge into a tiny pool of industrial solvents at its base.

Weather Control Vignette

Marc Laidlaw

A story fragment distributed to the *Half-Life 2* team for design inspiration. This sequence took place in an arctic base that was cut early in the project.

WEATHER CONTROL

The first they knew of the Combine's arrival was a distant roar. Gordon looked to the sky, clearer now than it had been since his arrival, the thready strands of greenish vapor finally receding, actual sunlight beginning to strike through. The canyons of ice through which they steered the battered Bradleys threatened the first feint glimmerings of glare; he'd need sunglasses soon if it kept on like this.

But with the heart-lifting glimpse of the sky came the reminder of death—more of a promise than a reminder.

Slicing through the mists, so high that at first he thought them birds, came a swarm of ships. Light, swift aircraft passed across his vision long seconds before he heard the shock of their passage. The clouds swallowed them up. For a moment all was still. The Bradleys rumbled on, but the soldiers, Vance's men, grew silent and shifted their grips on their weapons.

A second later, they were engulfed in an explosion of ice. A canyon wall blew into glittering shards. Gordon saw the Bradley nearest to the wall hurled spinning across their path; it sank head-on into the opposite wall. Another explosion, this one somewhere behind, deafened him.

He could see the soldiers shouting, but heard nothing but the ringing. He knelt instinctively, trying to find some protection, and as he did he saw another of the Combine airships sweep low over the canyon, directly overhead. Something hit the ice in front of them. The man who noticed hurled themselves out of the back of the Bradley, as if the vehicle itself might offer cover. Gordon flung himself to the snow, and then was flung by the force of the blast.

When he regained his senses, he saw the other men struggling to free themselves from the mounded snow. A few did not move. Up ahead, a greyish figure covered in ice made a bold gesture, beckoning them forward. The soldiers staggered forward, as the surviving Bradleys continued to rumble up the canyon toward their destination. He caught a glimpse of Alyx's face in the back of the rearmost Bradley, and was surprised by the sense of relief that touched him then.

Teneed against further strikes from above, Gordon scrambled toward the ice-covered soldier. As he drew closer, he saw it was Vance himself, rallying the men, shouting orders he could barely hear. But the squad seemed to know what to do. Spread out across the width of the canyon, they hurried on, skidding and sliding on the ice. The canyon opened out, and around the next bend Gordon got his first sight of the Weather Station.

It was a low dome, jutting with antennae and radar dishes, tiny red lights blinking above them. Around the dome were more structures, built low and painted white, almost indistinguishable from their surroundings. The whole thing was sprinkled with snow, like powdered sugar, but it was hardly a pristine image. There had already been fighting here. Smoke rose from a crack in the dome. The soldiers stationed inside the station had massed against the Combine operators as the news of the uprising spread; the fighting had torn it apart from within.

Vance caught sight of Gordon, grabbed him by the arm, and thrust his craggy face close to Gordon's ear: "There's a cargo plane coming for you, Freeman, but god only knows how long it'll take to get here—if it makes it through at all. Once we get you aboard, you can take those ships back to City 17. But we've got to last that long. We'll hold off the Combine as long as we can from out here, then we'll fall back into the Weather Station. I'm not anxious to get holed up in there, sitting targets, but we're awfully damn exposed out here."

As if to underline his words, a shadow fell over them. Gordon looked up to see an enormous ship crest the edge of the canyon, so close that it seemed to be crawling across the ice.

"Jesus, that's a mech carrier," Vance said. "I didn't think they'd be here this soon. Get moving!"

To Gordon's horror, the carrier drifted to a spot between him and the Weather Station. He expected it to settle on the ice, blocking their route completely. Instead, a hatch gaped in its belly, and a huge metallic parcel was lowered to the snow. As the carrier lifted, the package opened itself, metal unfolding into a nightmare that by now had grown familiar. It was a mech, one of the same that had chased him across the wasteland and harried him and Alyx. It was a cousin to Eli's robot, Dog, but apparently new-minted, and still without blemish; there was nothing awkward or hesitant about its first steps.

Gordon stared at the thing in something like awe, but the soldiers shared none of his wonder. They had seen the mechs many times, perhaps even fought alongside them; but never before had they fought against one. Still, they didn't hesitate. As if they had rehearsed exactly such an encounter, they moved into defensive positions. Each man seemed to know his role. Gordon began firing at the metal shell of the thing, but without much sense of its weaknesses—if it had any. But the soldiers were more methodical. The mech began targeting them, nastily pruning men from the unit, but for every soldier it killed another one seemed to advance further in the unit's plan.

Gordon's pulse quickened when he spotted Alyx down there, in the fray. She had leapt from one of the Bradleys while the others sped on toward the Weather Station, and she was coming up on the mech from behind. She had a grenade out, primed, ready to throw. Vance shouted something and ran straight for her, and his cry must have distracted her—for the grenade went wide, exploding in mid-air to one side of the mech's "hand."

The thing stopped, judging this explosive more of a threat than anything the soldiers carried, and began to pivot its heavy head to bear on Alyx. Gordon might have shouted something himself, but he was aware of nothing but Alyx standing there, looking suddenly so small, so alone, the brightest possible target in all that ice. He was running, firing helplessly at the shining carapace, running like Vance toward his daughter.

The mech's head did something, it pulsed with a faint glow as if powering up for a particularly lethal strike. One of the gun barrels swung toward Alyx, who backed away in atypical shock, as if she couldn't believe her throw had gone so wrong.

The mech began to fire, but in that instant its entire upper carapace exploded.

Gordon saw smoke rising from the direction of the Weather Station, trailing from the barrel of a huge gun located on the field below the dome. The blast had thrown sheets of accumulated ice from an installation of antiaircraft weapons. And now other guns began to spit fire and missiles, as the men from the Bradleys leapt into the bunkers and began to take on the airships.

Alyx had fallen, but by the time Gordon reached her she had regained her feet, with Captain Vance helping her up. She gave them both a brief flicker of a smile, then shrugged toward the guns. "They're going to need our help up there." She started running. She was still running when the next wave of shadows swept over the canyon, and the Combine forces—not merely advance guard—arrived in earnest.

Courtyards

"We wanted to go beyond the surface and the facades of the city, so we constructed it from its skeleton—the boulevards, the avenues, and the hidden spaces, like the courtyard on this location shot. Such secret spaces make up a lot of what you don't see when you're a visiting a city. We wanted a sense of depth in our world." – Viktor Antonov

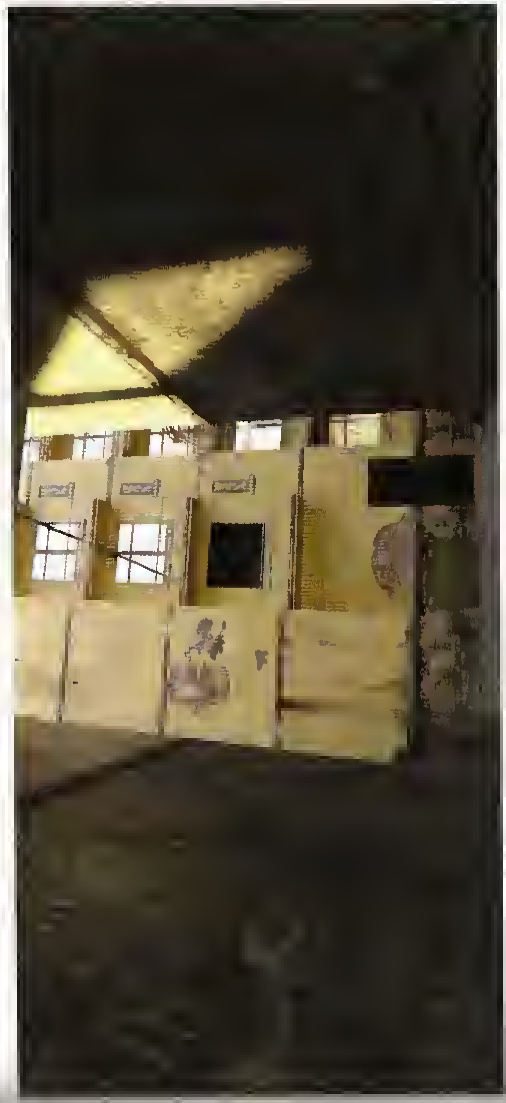
Lighting

Lighting was as much of an engineering challenge as it was an artistic one. It was important to give *HL2* a lighting style different from other games, as Valve artists went for a subtle, diffused lighting style. Radiosity and bounced light played an important role in creating atmosphere and unifying the geometry. Material properties were used in a subtle manner and the use of specularity was very controlled.

"Autumnal light provided a gentle, soft look to our exteriors that needed to be contrasted by a sterile, artificial neon look of the interiors. Examples are the harsh crisp tunnel lights of the invaders in this location shot. That defined our light palette. We were very particular about light falloff, shadow edge softness, and light temperature, as this screenshot shows. The cold light color was also used as a story device, indicating the presence of the invaders and becoming their 'signature' hue." – Viktor Antonov

Research

"Research was crucial for this project. Once we had established an imaginary location, we had to make it real. The art department started preproduction as the developers were creating and tuning the world-building tools. There was a definite obsession with detail in the building of the world. We had a photographer do extensive research on location, where he shot all kinds of seemingly insignificant details—an example is this photo of an actual rooftop in Sofia which helped us create our rooftop area. The next image is an in-game shot of a similar area we recreated with an extra level of stylization. Here we studied the tin and terracotta and their surface properties in order to recreate them in our rooftop scene. We wanted to get the exact reflectivity and specularity of different materials in order to create our shaders. The goal was building a very specific material library." – Viktor Antonov

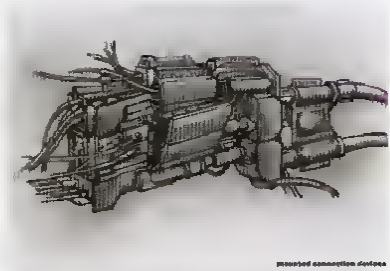


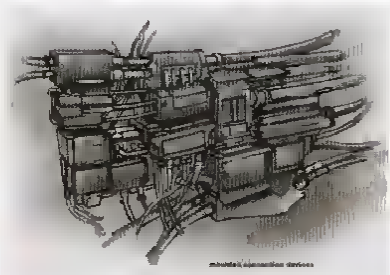
Combine invasion

In portraying the effect of alien invasion, artists started by creating a realistic setting and then added themes to create strong visual contrast. This screenshot shows the alien technology absorbing the human city and creating a sense of intrusion and conflict

Combine Technology
Viktor Antonov & Eric Kirchmer

Early visions of the Combine wall had it devouring the City over the course of the game, an ominous metal monster that constantly reconfigured itself as it advanced.





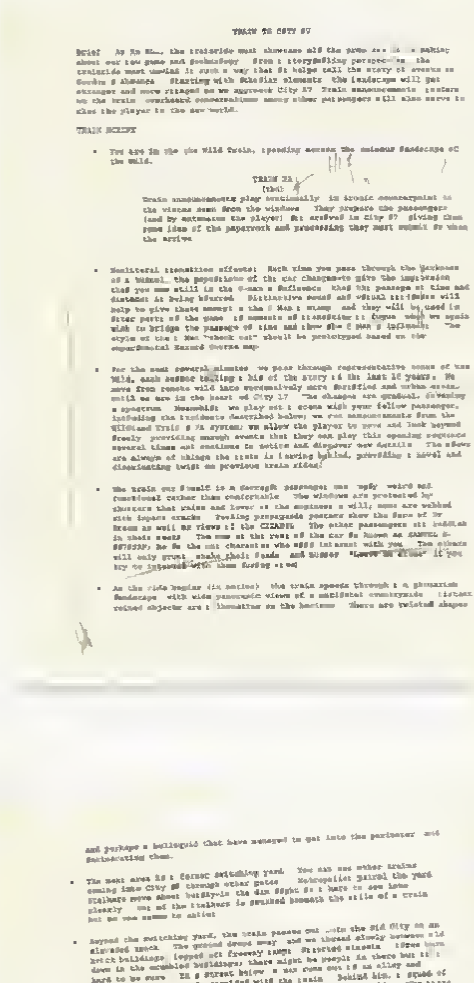
Combine Styles
Viktor Antonov

Once the basic design themes of the Combine invaders had been developed, the team applied them to many different kinds of objects in the world

Train to City 17 Introduction

Marc Laidlaw

A working version of the opening Trainstation scene



TRAIN TO CITY 17

Brief As Mr Ma... the trainride must showcase all the game ... [illegible] making about our new game and technology. From a storytelling perspective, the trainride must unwind in such a way that it helps tell the story of events as Gordon & Alyx... Starting with Scholar elements the landscape will get stranger and more ritzged as we approach City 17 Train announcements [illegible] on the train overheard conversations among other passengers will also serve to clue the player in the new world.

TRAIN SCRIPT

- You are in the the Wild Train, speeding across the ominous landscape of the Wild.

TRAIN 23
(Ext):

Train announcements play occasionally in ironic counterpoint to the visions seen from the windows. They prepare the passenger (and by extension the player) for arrival in City 17 giving them some idea of the paperwork and processing they must submit to when the arrive.

- Nonliteral transition effects: Each time you pass through the darkness of a tunnel, the population of the car changes to give the impression that you were still in the G-man's Suitcase that the passage of time and distance is being blurred. Distinctive sound and visual triggers will help to give these moments a the G Man's stamp and they will be used in later parts of the game as moments of transition it [illegible] might be again wish to bridge the passage of time and allow gl- G Man's influence. The style of the G Man "check out" should be prototyped based on the experimental Xenon Corpse map.

- For the next several minutes we pass through representative scenes of the Wild, each scene telling a bit of the story of the last 20 years. We move from remote wild lands systematically more forbidding and urban scenes, until we are in the heart of City 17. The changes are gradual. Showing a spectrum. Meanwhile we play out a scene with your fellow passenger, [illegible] the incidents described below) we cut announcements from the [illegible] and Train's PA system; we allow the player to pace and look beyond freely providing enough events that they can play this opening sequence several times and continue to notice and discover new details. The shows are always of things the train is leaving behind, providing a novel and disorientating twist on previous train rides!

- The train car itself is a decrepit passenger car ugly weird and functional rather than comfortable. The windows are protected by shutters that raise and lower as the engineer will; some are welded with spikes cracks. Peeling propaganda posters adorn the face of by Breen as well as views of the CITADEL. The other passengers sit publish in their seats. The same as the rest of the car is known as SAMUEL E-[illegible]SSON. He is the one character who might interact with you. The others will only grunt, shake their heads and mumble "Leave me alone" if you try to interact with them during a nod

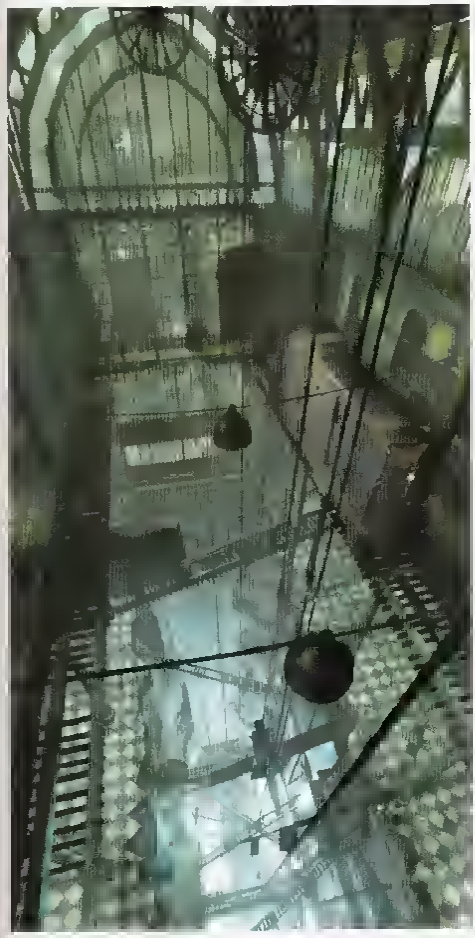
- As the ride begins (in motion) the train speeds through a panoramic landscape with wide panoramic views of a malignant countryside distant ruined objects are illuminated on the horizon. There are twisted shapes

and perhaps a bulletgold that have managed to get into the perimeter and [illegible] them.

- The next area is a former switching yard. You can see other trains coming into City 17 through other gates. Metropolice patrol the yard cleanly. One of the trainlines is punched beneath the side of a train but we see nobody to shoot.

- Beyond the switching yard, the train passes out ...into the old City on an elevated track. The ground drops away and we thread slowly between old brick buildings topped not frequently [illegible] partially burned wrecks. Stirred wrecks. Three hundred down in the crumbled buildings; there might be people in there but it's hard to be sure. In a street below a man runs out of an alley and [illegible] behind him. A splash of [illegible] across the street garnished with the train [illegible]. The man falls [illegible] the alley and runs [illegible]. The Metropolice step from the alley and open fire. The man falls [illegible] passes from view as the train moves on into a tunnel.

- When the train emerges it is winding through a section of the New City very dark more like buildings cold and inhospitable. The train slides slowly past an apartment building that looks like a prison-[illegible] [illegible] [illegible] [

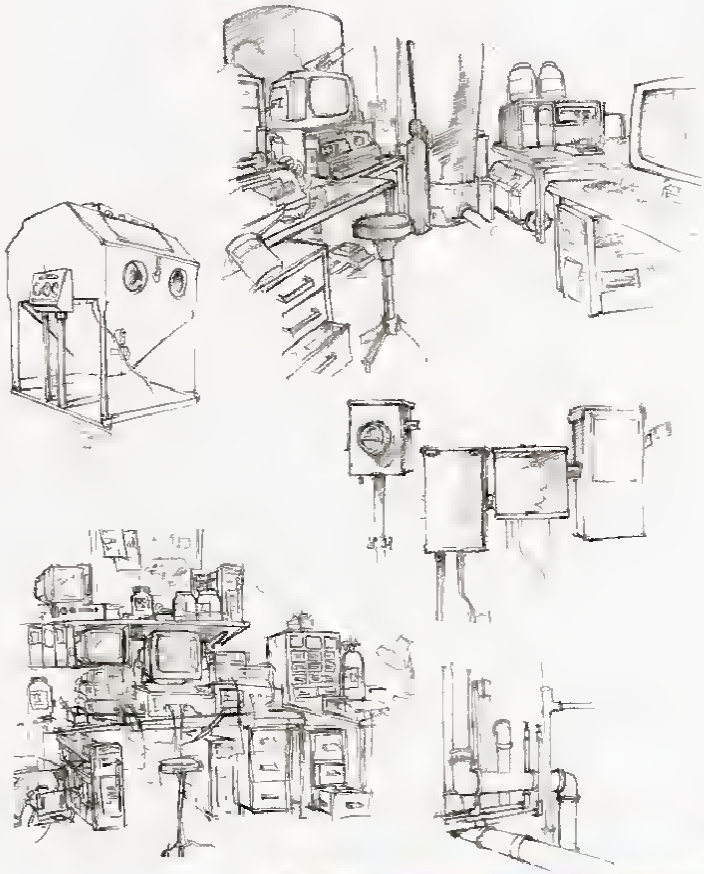


Trainstation
Viktor Antonov

The player's path through the City 17 Trainstation was meant to play a role similar to that of the train ride in *Half-Life*. In *Half-Life 2*, the story would unfold at the player's own speed, rather than on a fixed rail, and come about through interaction with the characters naturally found in that setting.

"Getting the Trainstation right was critical, since it was to be the place where the player formed his first impression of the world—the ways in which it had changed, and the ways in which it was still the same human world." - Aaron Barber

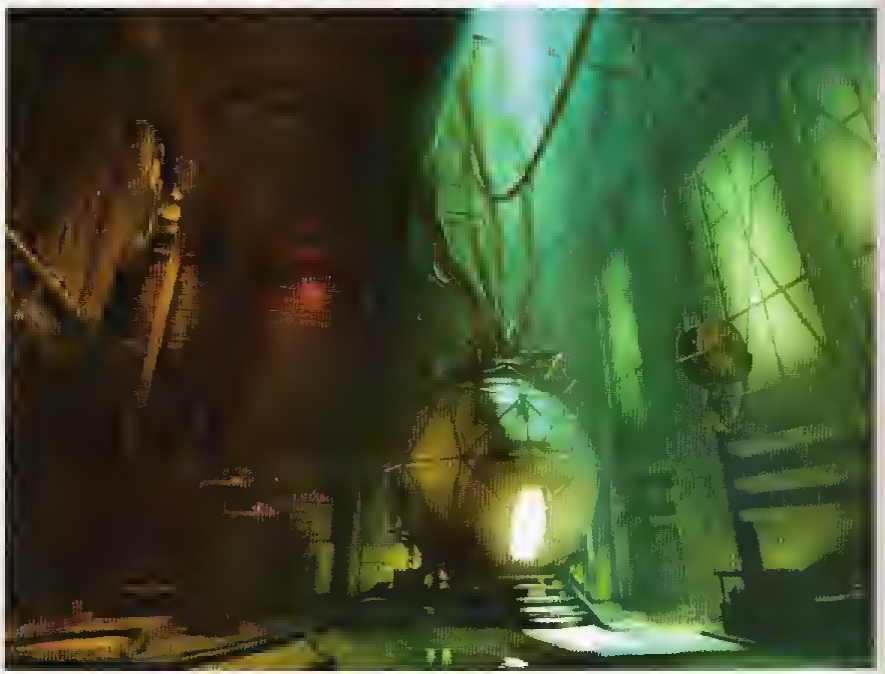
"The first version of the Trainstation was very close to a train station designed by Alexandre-Gustave Eiffel, of Eiffel Tower fame, in Hungary's capital, Budapest. The final iteration was more closely based on a train station near where I lived in Paris." - Viktor Antonov



Doctor Kleiner's Lab
Eric Kirchmer & Dhabih Eng

An early concept for Dr. Kleiner's teleport (below). Doctor Kleiner's laboratory is chock full of interactive objects to amuse the restless player.

"We added security monitors to view a mini-teleport to play with, big corkboards with lots of little details to look at, and pretty much anything we could throw in there to help those players bide their time." – Dhabih Eng



City 17

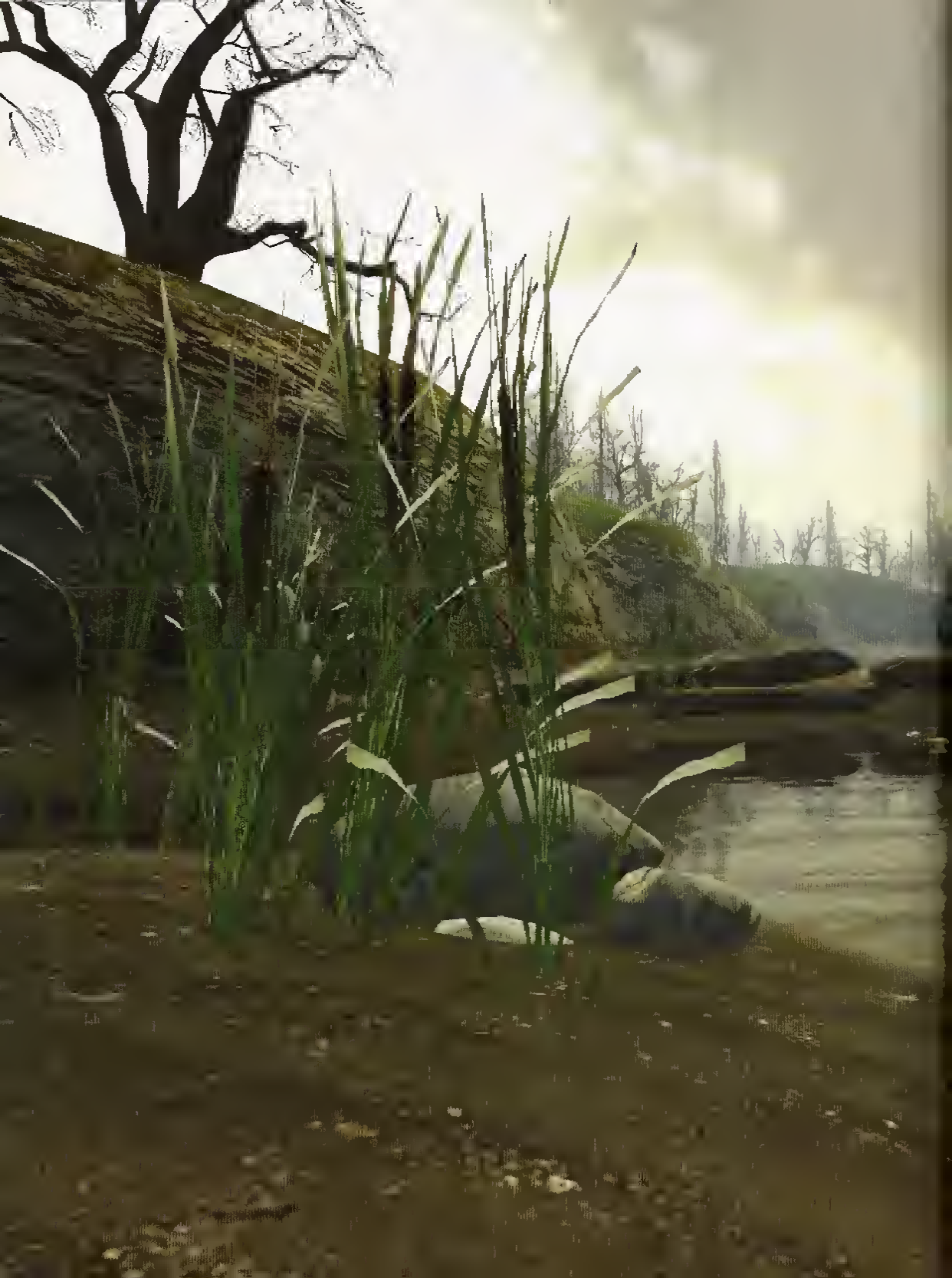
City 17 Propaganda
Randy Lundeen

Canals
Dhabih Eng & Tri Nguyen

Canals
Tri Nguyen

Canals
Viktor Antonov

'The original design of Canals was set up with a lot of enemies that the player would drive under, but we found that people didn't consistently play through that way. They didn't want to leave a couple of guys behind that were pestering them or getting a clue that they were missing something in the game. For a lot of players, they want to experience 100 percent of the game, and they felt like they weren't getting that. So Canals went through a lot of changes to make it more direct in terms of combat or more direct navigation.' – Dario Casali



Eli's Lab
Dhabih Eng

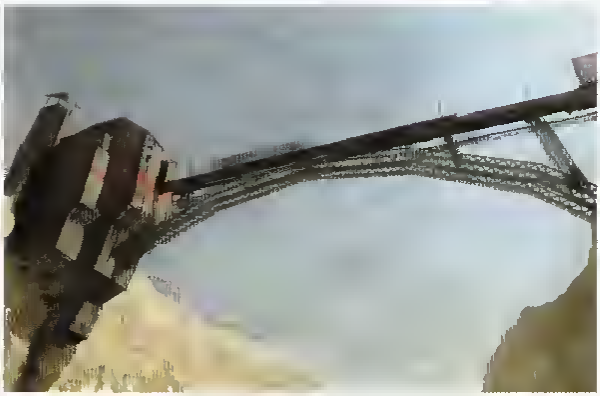
An early concept of Eli s lair (below) and the eventual lab setting (right) Eli's base of operations went through numerous changes over the development cycle At one point it was situated beneath an overturned ship at another it was drilled deep into rock, with hanging gardens and underground wells What never changed was the notion that it should feel like a place of safety, a warm and friendly oasis in the midst of a harsh environment

Ravenholm
Viktor Antonov

"Ravenholm was to be a sanctuary gone bad a place where the player went expecting help from allies but discovered instead that they had all become enemies The challenge was to build an isolated town, remote enough to have escaped Combine notice for a while but which still seemed to inhabit the same world as City 17 "
- Dario Casali

Ravenholm
Eric Kirchmer & Ilona Dociu

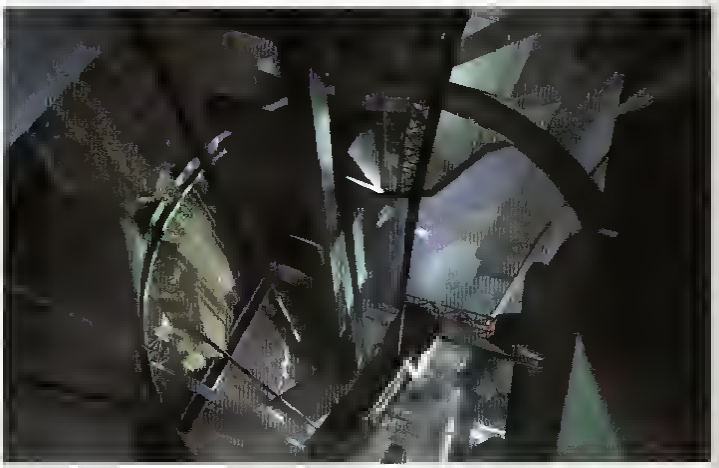
Artists often worked in league with level designers to create the precise look and geometry of levels and gameplay elements. While a level designer could test early ideas for traps by using simple geometric shapes, at some point they would turn to artists to convert the rough designs into detailed models.



Coast
Viktor Antonov

Gordon Freeman's journey through the wasteland, from the earliest stages of the design, had him travelling parallel to the City 17 train. The train was a key theme of the game, tying all its environments together, transporting mysterious cargo from the City to outlying facilities.

Along the tracks were depots, where the train would stop, refuel, unload, or take on cargo. One main depot, originally a way station on the way to the Air Exchange, became an end in itself. Then when the Air Exchange gave way to Nova Prospekt, the depot was merged with that design, further streamlining the path through the game.



Coast
Viktor Antonov

"One of the consistent level design challenges throughout the project was addressing conflicting gameplay and artistic concerns. Gameplay passes would commonly introduce elements that didn't fit well within the current artistic vision, which would then require an art pass. Art passes often inadvertently changed something that had mattered to the gameplay. Most levels were bounced back and forth a number of times, with compromises in each direction. Some of the best levels were ones where art-pass changes fed successfully back into the gameplay by providing new inspiration. The bridge map along the Coast is my favorite example, as I feel it's one of the levels where the art and gameplay are most closely intertwined." – David Sawyer

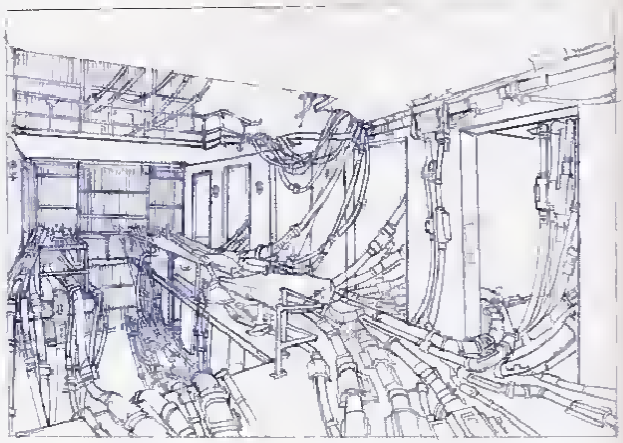
Nova Prospekt Express
Viktor Antonov

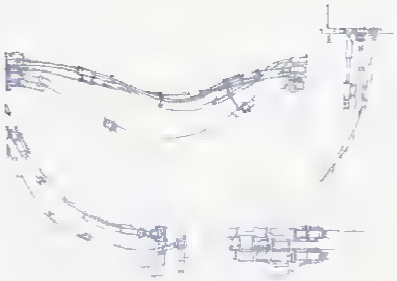
The Combine train (known internally as the Razor Train) was one of the first pieces of Combine machinery to be designed.

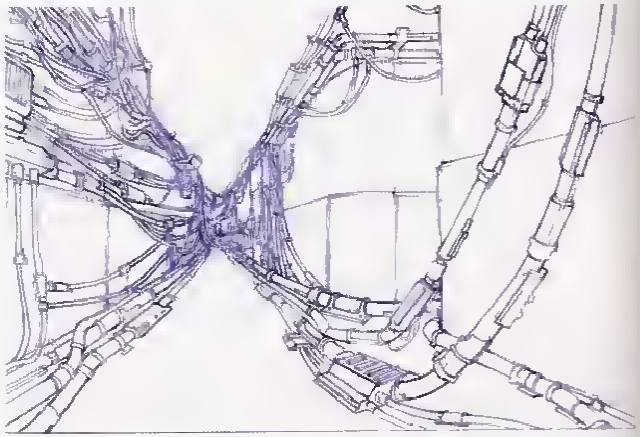
HL2 DEPOT
PRELIMINARY OVERVIEW

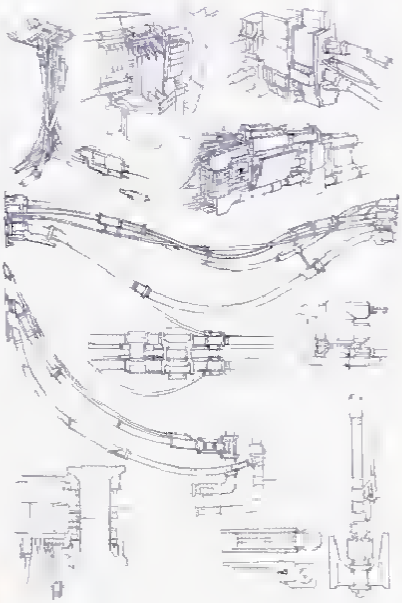
Nova Prospekt
Eric Kirchmer & Viktor Antonov

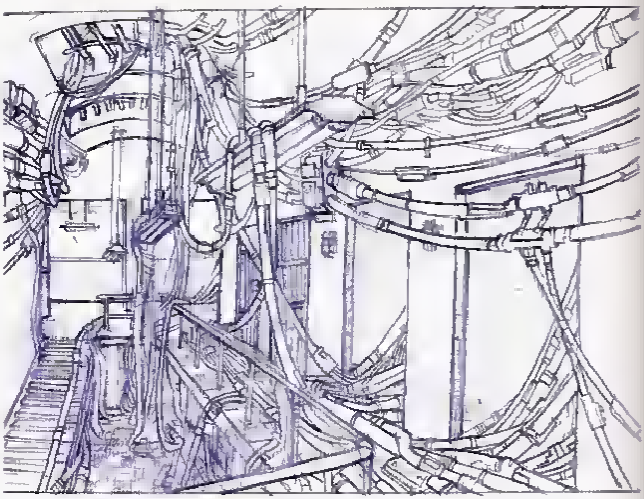
As the Air Exchange gave way to Nova Prospekt, the emphasis shifted from a purely industrial setting, to one where humans were treated like machine parts. The progression through the levels is one that was deliberately repeated over and over throughout *Half-Life 2*. Beginning in a familiar human environment, the designers gradually layered in more and more alien touches until the environment was composed almost completely of Combine materials.



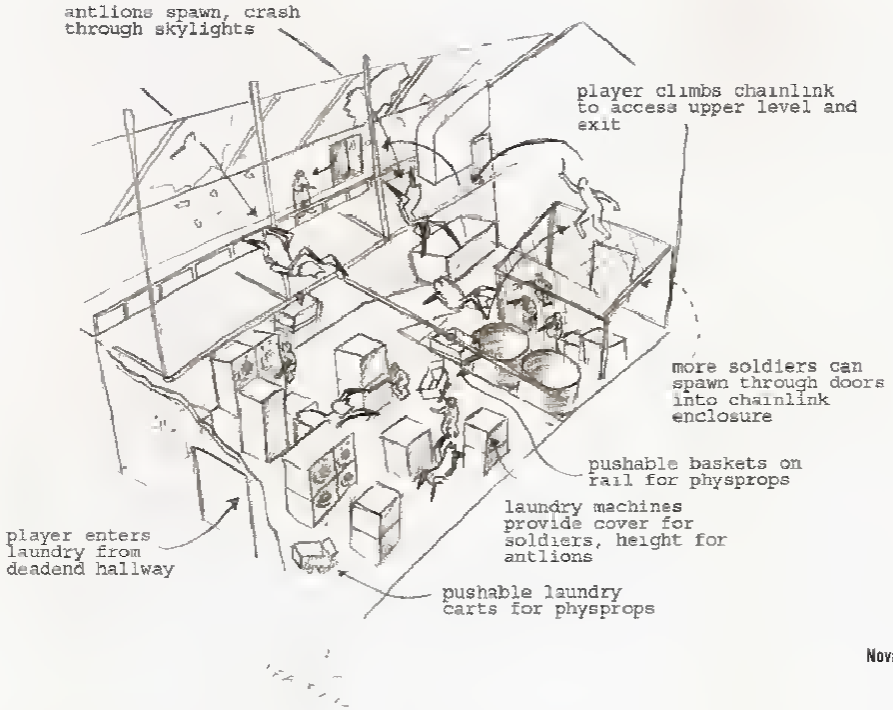




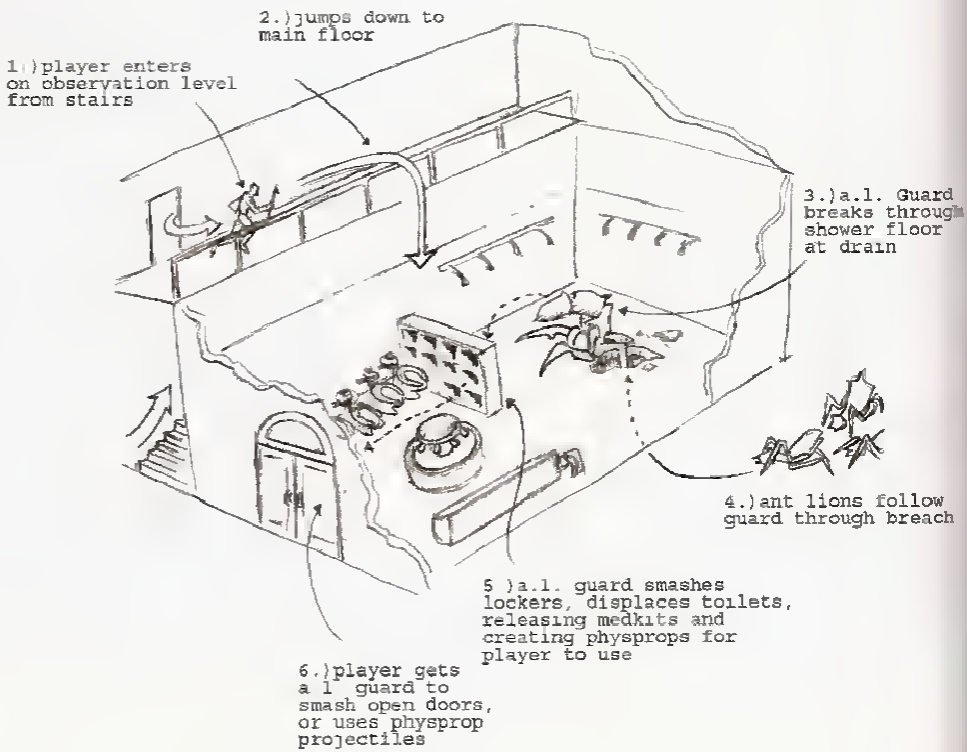




BLOCK 45

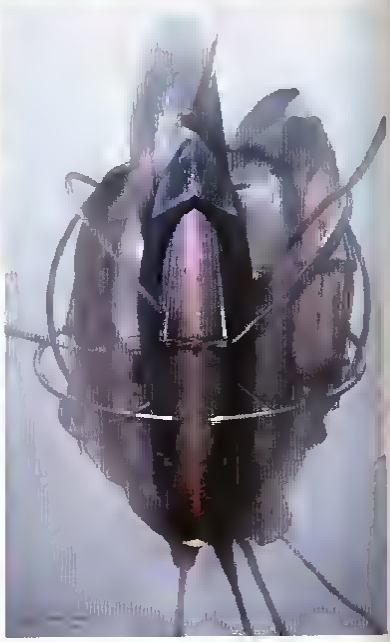

antlions spawn, crash through skylights
player climbs chainlink to access upper level and exit
more soldiers can spawn through doors into chainlink enclosure
pushable baskets on rail for physprops
laundry machines provide cover for soldiers, height for antlions
player enters laundry from deadend hallway
pushable laundry carts for physprops

Nova Prospekt Schematics


2.)jumps down to main floor
1.)player enters on observation level from stairs
3.)a.1. Guard breaks through shower floor at drain
4.)ant lions follow guard through breach
5.)a.1. guard smashes lockers, displaces toilets, releasing medkits and creating physprops for player to use
6.)player gets a 1 guard to smash open doors, or uses physprop projectiles

primagames.com

Nova Prospekt
Dhabih Eng & Eric Kirchmer



Nova Prospekt
Viktor Antonov & Dhabih Eng

Artists often took screenshots, or images directly from the game, and added details over top of them in Photoshop. In this way, it was possible to try out in advance the effect of layering in Combine devices, and then modeling those devices so that level designers could place them directly into the game

HL2 Depot -

CELLBLOCK 3

MELEE AND BARRICADES:

Cellblock profile

Most battle is happening on ground floor
the top floor provides a breathing space
from which to watch and intervene as player s
favour. though stray antlions sometime come
up the stairs or through windows

Lower floor is swarming with antlions
but player can pick them off from the
safety of the mezzanine catwalk thus
gaining escape through collapsed floor
and to level exit

Med supplies

Corridor spill: with cars system using
barred mezzanine track (see reference

Player can drop bugbait or
grenades onto soldiers below,
softening the area before entering
via damaged area of floor-bars

dead
Antlion
Guard

Antlions also enter
through windows

rusty cell doors
not always enough

Scripted sequence: soldiers
erect barricade only to have
antlions burst through ground
behind them

Primary barricade, can be broken
through by bugbait or weapons
Guards inside are being pushed
up against it by antlions
attacking from rear

If player did not kill
or bugbait guards at
start of level they will
have to be fought to pass

guard
catwalk

Cellblock with working doors
can be used as antlion containers
via bugbait alternative to combat.

Isolated guards
holed up in cells

Barricades

Player has to drop into cluster of
soldiers but can use height
advantage and/or bugbait beforehand.

Soldier ragdoll

Guards (a) have backs to player;
player is free to ignore
them or ambush them

Earlier Bar icade destroyed
and overrun by antlions
(player has to find place
to climb/squeeze through)

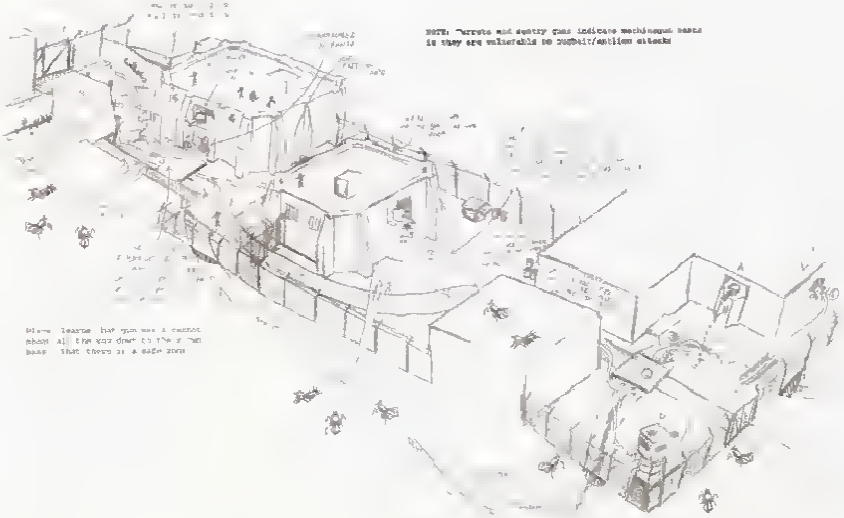
As player comes around corner
antlions break through barricade
at end of hall and overwhelm guards
at (b) Player can bug bait guards (a)
or n cell or fight through

Med supplies
wounded soldier

HL2 Depot

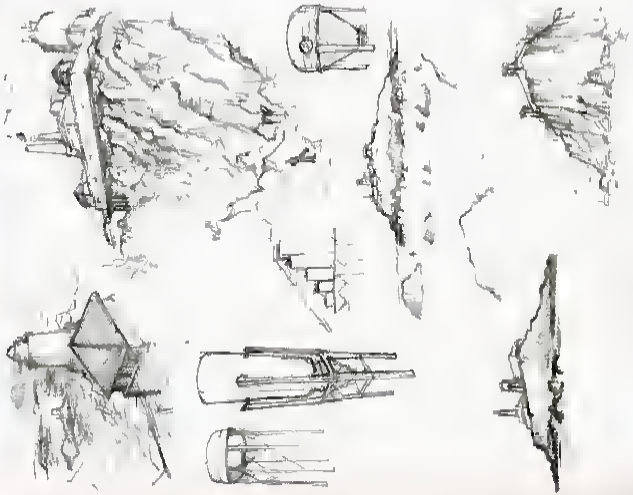
YARD

NOTE: Turrets and dusty zone indicate machinegun posts
in they are vulnerable to bugbait/antlion attacks



Where learns that gun was A cannot
shoot all the way down to the B the
base that there is a safe zone

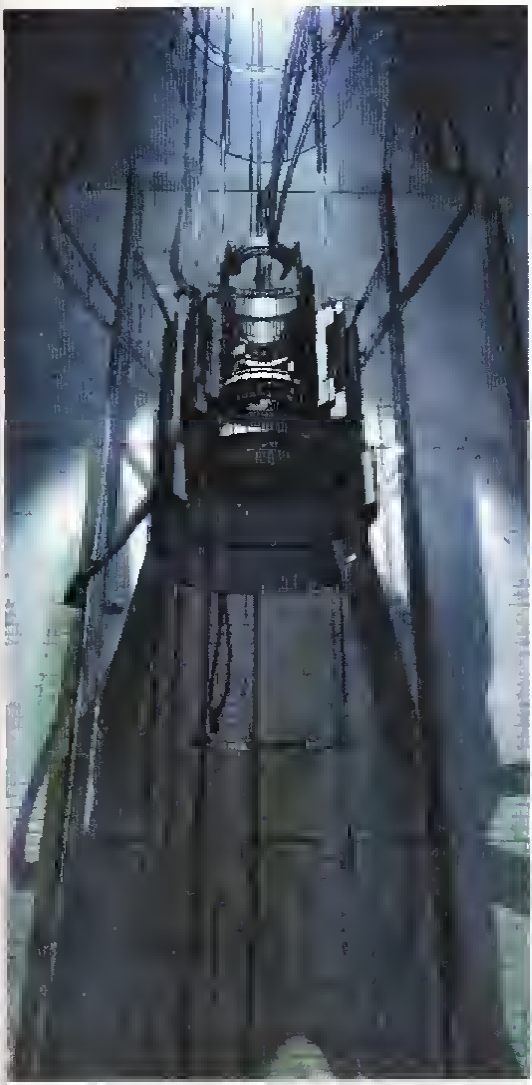
Re ngr ahe ter fro A B but A A cannot see B about gun wh le she waiting
Block shelter f om gu B and B can reach area gre enough to see or gun A
that A cannot shoo e them A can s be seen at all from safe area but bugbait is
effect ve grenades CAN A B with though are difficult
3 When bugbait antlions m.ay down gun A the B tick them provides cover from B and
then e safe route to the safe zone here of B Repeat bugbait attack
4)Once gun B is dea the ma cure doe s be longer lethal p ayer can finish

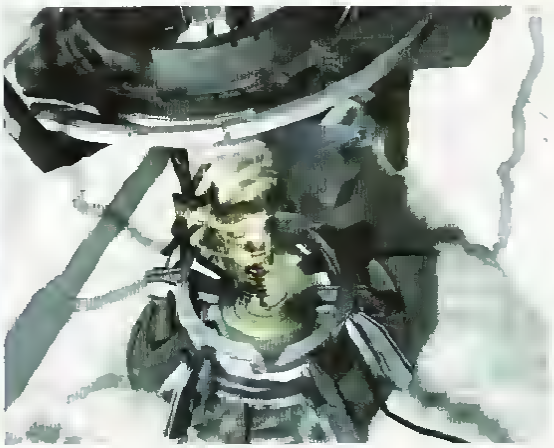


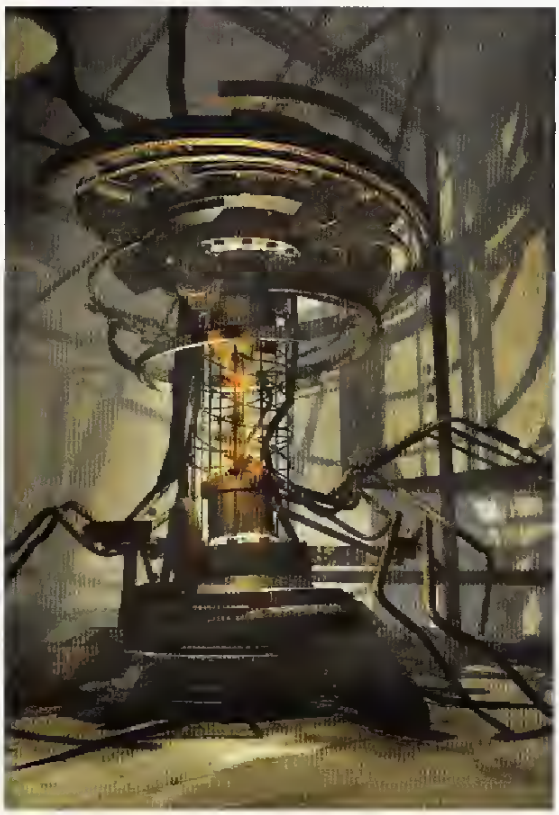
890

Teleporters
Viktor Antonov

As the player draws closer to the Citadel, there is a progression from purely human forms to overwhelmingly alien environments. This is reflected in the crucial teleport technology shown throughout the game, from Dr. Kleiner's and Eli's crude, jury-rigged teleports, to the polished Nova Prospekt teleport, and finally to the immense portal at the heart of the Citadel. Designing these devices so they shared similarities, yet were visually distinct as a reflection of their creators, was a challenge for the artists.







Teleport Studies
Viktor Antonov

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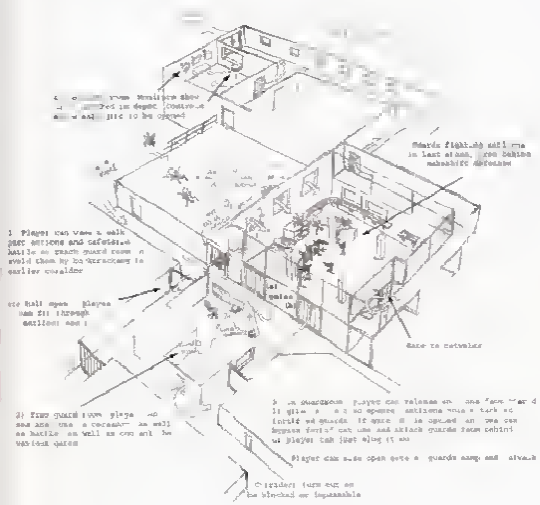
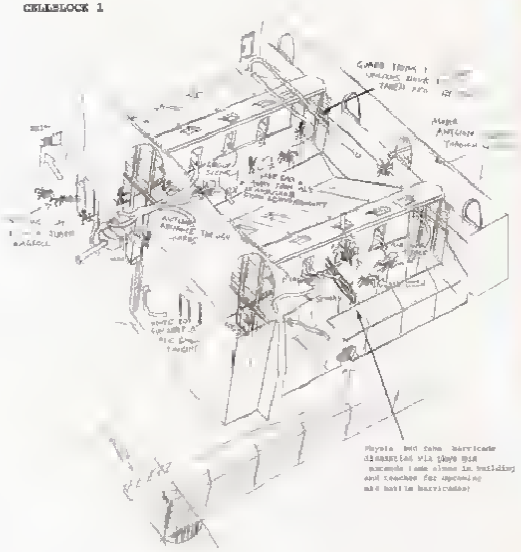
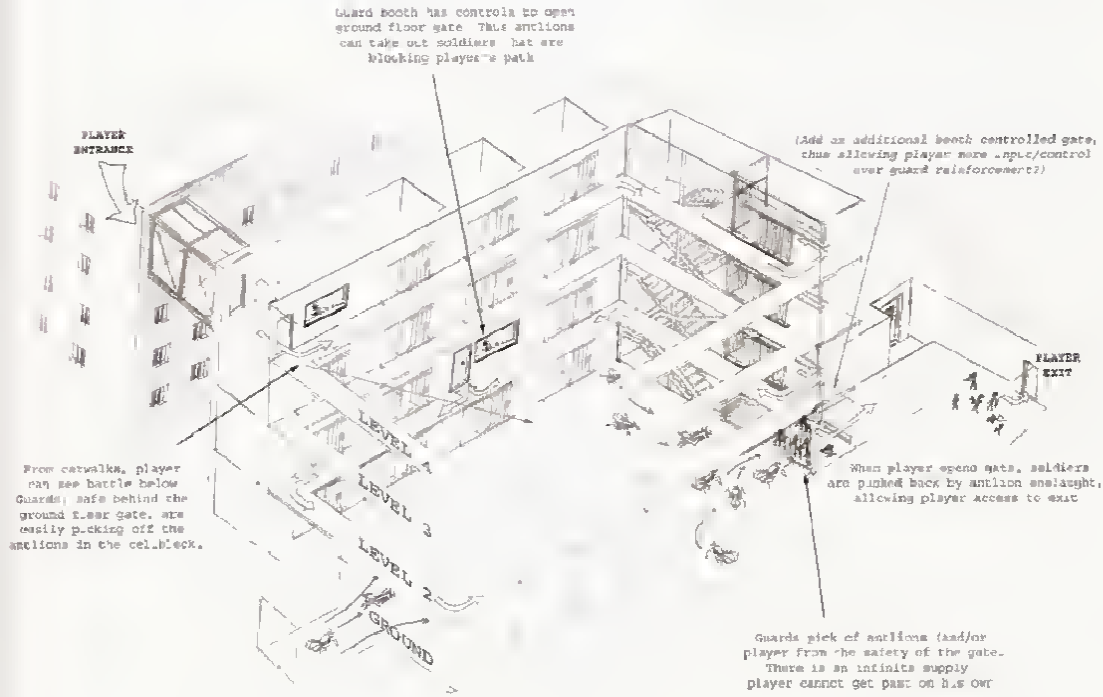
CAFETERIA



HL2 Depot
CELLBLOCK 1



HL2 Depot
CELLBLOCK 2


Guard booth has controls to open ground floor gate. This enables can take out soldiers that are blocking player's path
PLAYER ENTRANCE
(Add an additional booth controlled gate, thus allowing player more space/control over guard reinforcement?)
PLAYER EXIT
LEVEL 1
LEVEL 2
LEVEL 3
GROUND
From catwalks, player can see battle below. Guards safe behind the ground floor gate, are easily picking off the antlions in the cellblock.
When player opens gate, soldiers are pushed back by antlion onslaught, allowing player access to exit
Guards pick off antlions (and/or player from the safety of the gate. There is an infinite supply player cannot get past on his own

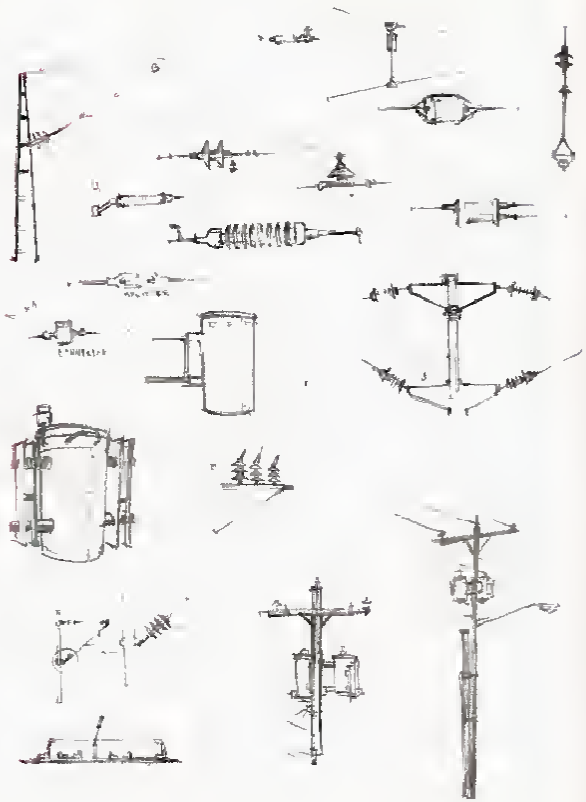
Meticulous sketches of Nova Prospect, from the depot point to the cellblocks showers and cafeteria, show the merging of art and gameplay at the most basic level

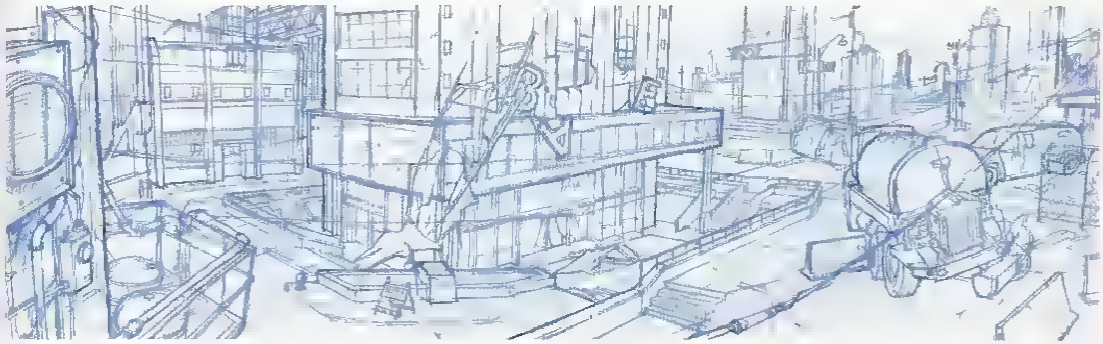
One of the few successful and surviving bits of City 17 propaganda, this design was influenced by Russian and American wartime posters. The amount of printed matter posted on city walls was reduced in favor of omnipresent electronic "Breencasts."

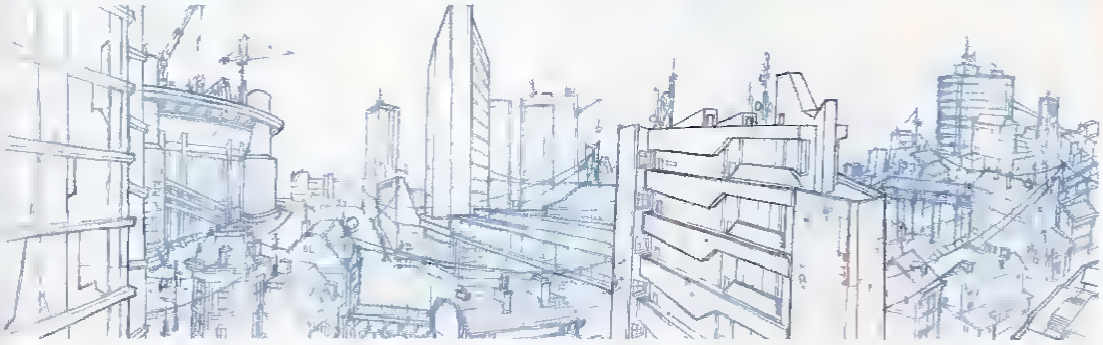
City 17
Damarcus Holbrook, Tri Nguyen, & Eric Kirchmer

A significant element was chosen for each set of levels and repeated until it became a theme. City 17 is filled with wires, antennas, and smokestacks. The rooftop area in *Half-Life 2* started out as structures that were seen from afar, but because of gameplay and visual potential, it turned into a part of the player's path.

"We have three sizes of objects in the world, and we have a formula of what makes a level look balanced. There are the large, medium, and tiny objects. This is the basic formula. We have to check on each one that's built to match the level of detail. First, we start off with city blocks, large girders, and big architectural designs. Then we went down to ornaments, antennas, and trees. Then we went down to trash, posters, and little decals." – Viktor Antonov



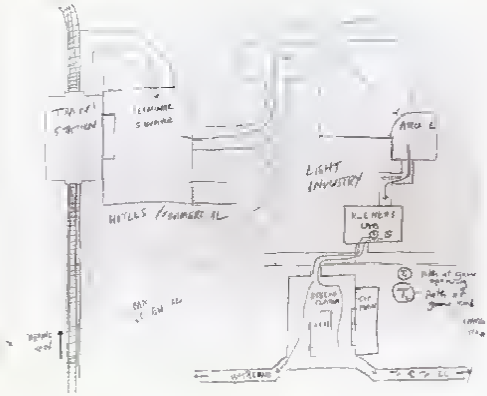


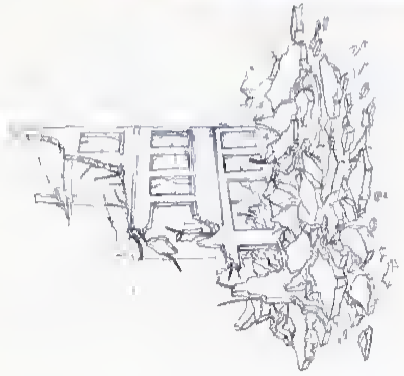


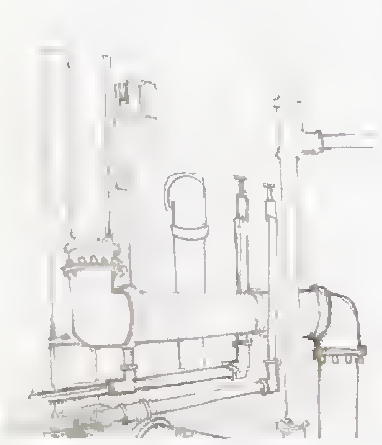
"I think we had somewhere around 4,000-5,000 textures and 2,000-3,000 models two years ago. I've lost count. If anything, we created too many assets for too many areas. We joked about how we could put together an entire series of architecture CDs and sell bottles or benches or chairs."
- Randy Lundeen

Opening Sequence Flowchart

This map of a small section of City 17 shows an early plan for the route from the Trainstation to Kleiner's lab. Much of this route was built at one point, but the path was so long that it would have made the exploratory phase of the early game tedious. In the final game, the player essentially enters the Terminal Square, then walks around the back of the Trainstation to find Kleiner's Lab.

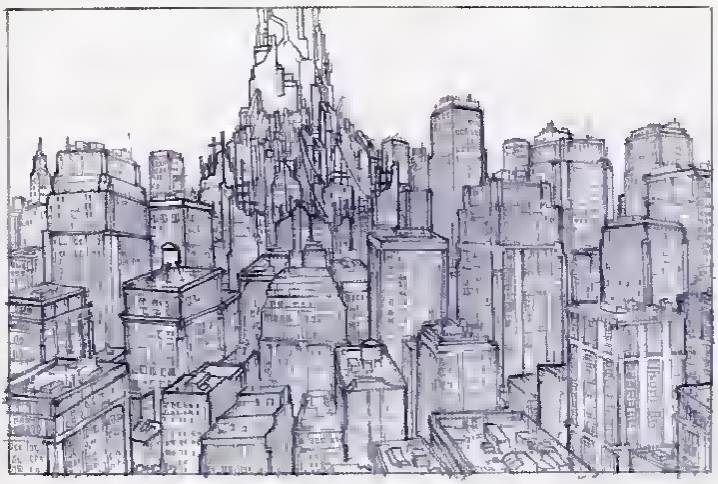


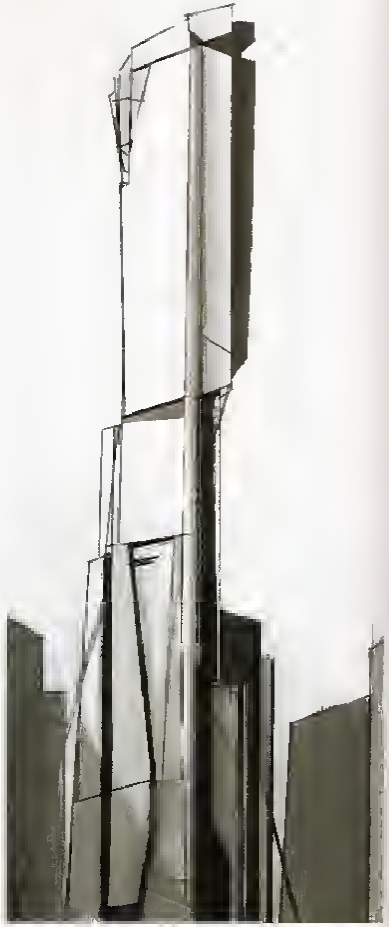




Destroyed City 17
Eric Kirchmer & Damarcus Holbrook

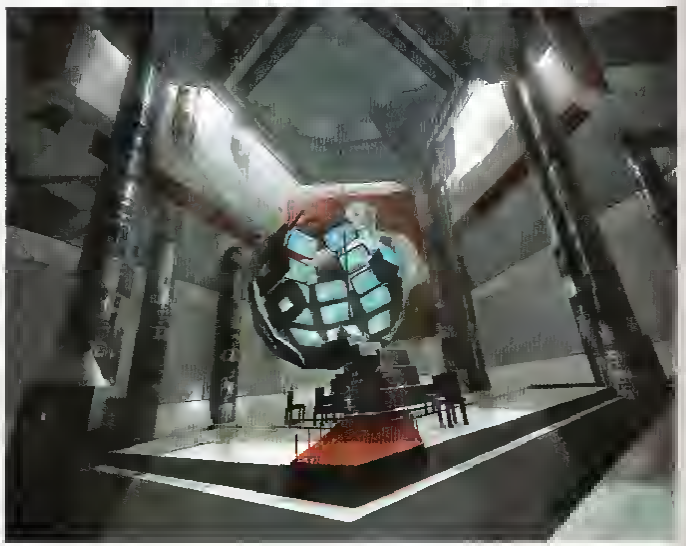
To construct the destroyed city portion of the game, designers built low-detail buildings in the world editor Hammer, then took them into the Softimage XSI and "destroyed" them, breaking them up and adding details like rebar and cracks

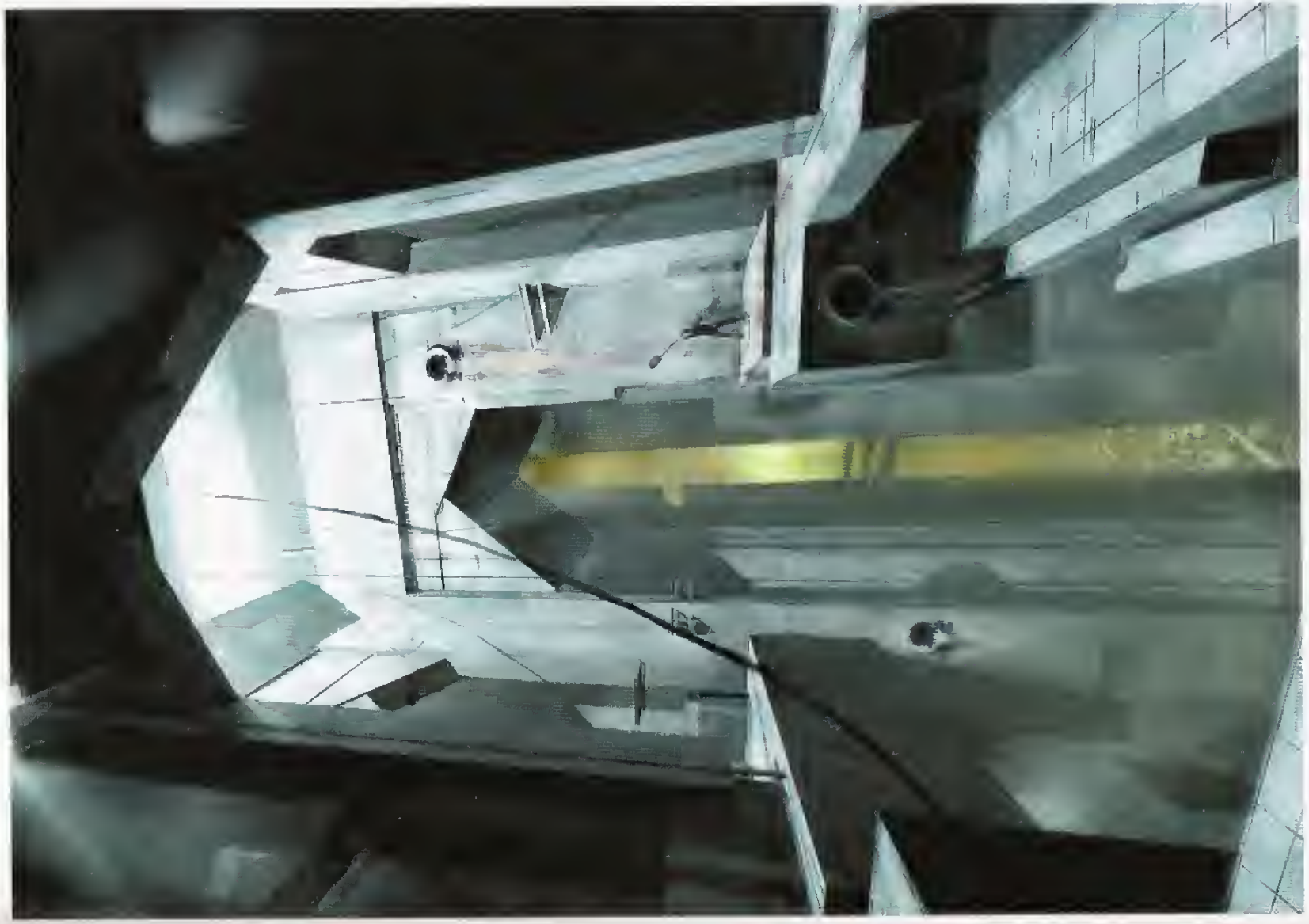




Citadel Interiors
Jeff Baffinger & Viktor Antonov

The Citadel interior design was influenced by the monumental totalitarian architecture of Nazi and communist regimes. One difference from these realistic sources is the broken symmetry, which creates a sense of tension

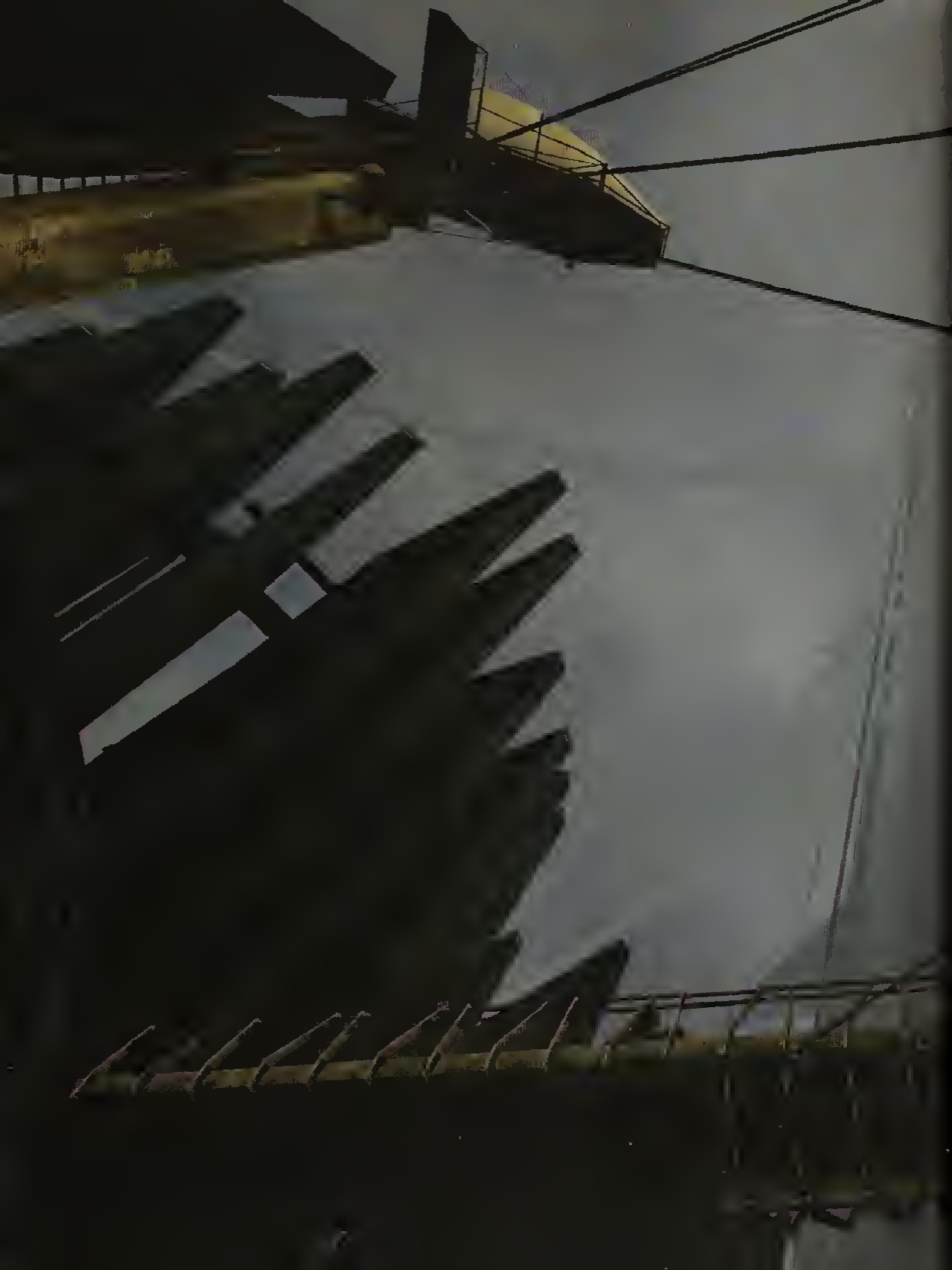




ALIVE

Citadel
Viktor Antonov

The "pods" whereby humans were transported throughout City 17 and the Citadel were another crucial part of design, as they were glimpsed in the very opening of the game, but only became completely clear in the final act. Valve designers wanted them to be intriguing but not reveal too much



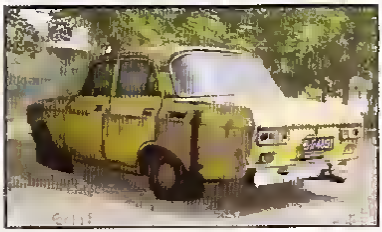
Half-Life 2: Final Sequence

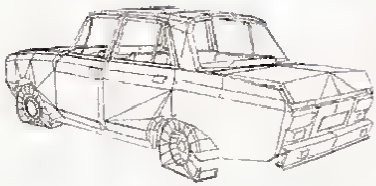
.06

As might be imagined of a process where cutting edge technology drives both game mechanics and final art, the process of making games requires a steady series of small steps and a number of huge intuitive leaps. The process is an iterative one, in which no creation lasts very long without being thoroughly tested, criticized, revised, and tested some more. Wild proposals and crazy ideas —for gameplay, for settings, for characters— are a constant part of the atmosphere at Valve, with the only rule being agreement that even the best idea should not break the continuity and consistency of the game. The ultimate test of any idea is how well it works in an actual level. The level is the place where it all comes together: gameplay, art, sound, every piece of the puzzle. The tricky part is building the separate pieces with total artistry, while trying to anticipate the ultimate shape of the game.

Half-Life 2 Cabals

Around the beginning of 2003 it became apparent that the problem of creating *Half-Life 2* was far too large to treat monolithically. The team needed to break up into smaller groups and focus individually on an area, so that each person would have less breadth to worry about and thus could focus more deeply on their work. These cabals would be nearly self-sufficient teams, such as an animator, two programmers, and two level designers. Three cabals were set up to work on specific sections of the game: Coast, Canals, Prison, etc. The acting sections of the game were created by a fourth cabal that worked parallel to the gameplay cabals to create the elaborate scenes that tell the story of *Half-Life 2*. This basic structure was maintained for the last year and a half of development.





Building From Reference

Eric Kirchmer

One of the goals for *HL2* was to never build anything without first researching it. The artists went on numerous research field trips, took 1000s of photographs, collected countless reference ideas from the Internet, and did many conceptual drawings and renderings. Over the six year development, they created a reference folder that has accumulated 50,000+ images.

"Sets of world models and details were created from reference photos taken from around different Eastern European cities. We would draw rough sketches and compositions to get the overall specifics of the model and then build them in 3-D. Lighting and dirt gradients were then baked into the model and applied to the material used, and an appropriate color scheme was chosen to compliment the surroundings. Once a set of models was complete, we made a prototype map or 'zoo' to composite the various models and made this accessible to level designers." — Eric Kirchmer

Rough Shelling

The rough shelling process created the "Lego" building blocks that could be assembled into environments. The important aspect was to nail down the proportions and volumes quickly with the Art Director, so artists could hand off these blocks to the game designers to use in early gameplay prototypes. The "blocks" were built on a strict grid so they could easily snap together and the team would know that the textures would line up and be at the correct resolution.

"We put a lot of rich, relatively low-cost detail into the world. In the river sections in particular, the banks are full of high-frequency detail, like foliage, crashed vehicles, trash, rocks and logs, and deeper pools that allow the player to explore and find hidden goodies and interesting details. You might find a dead body with a bunch of goodies in a grove of cattails, or a skull in the mud at the bottom of a pool, or a special surprise in a sunken pipe. Things like this show intentionality and investment in the world on the designer's part." - Dave Riller

Style Guides

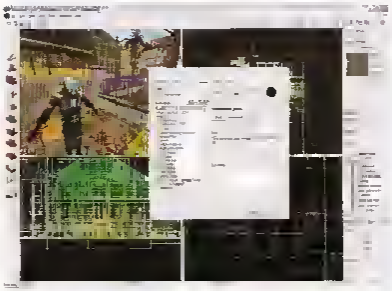
After the rough shells were created the art team would take one or two scenes from the area and fully realize it. This entailed establishing the level of detail, placing the textures, creating the lighting prefabs, and adding atmospheric effects. All furniture, light fixtures, junk, garbage, foliage, decals, and wires were placed in this pass. These levels became the "style guides" from which the game designers drew details as they fleshed out the rest of the rough gameplay shells.

Art Integration

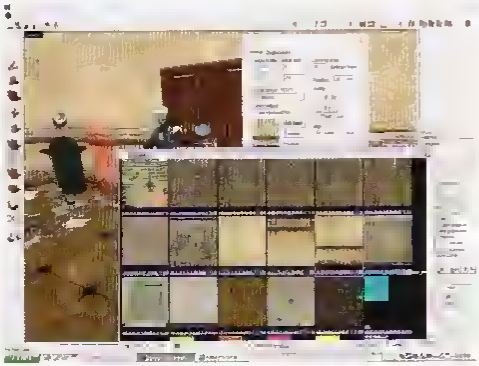
After the game designers finished their first pass of integrating the style guides into their rough shells, the art team would spend a few days going through each of the spaces. The team found this to be the hardest part of production – maintaining the balance between gameplay and aesthetics. Randy Lundeen and Aaron Barber were the primary bridges between art direction and game design. Their iteration process involved a lot of back-and-forth tests and compromises, especially in regard to performance.

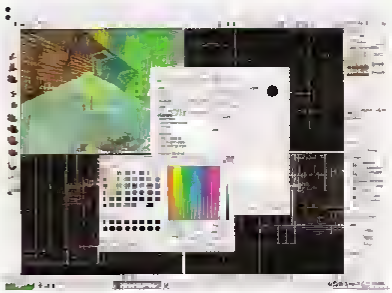
Orange Map Process

"If a level had temporary textures or artwork that could conceivably be thought of as final people would fixate on those things instead of the gameplay. Using orange maps allowed us to clearly separate gameplay and art during the early stages of a level and iterate much more quickly than we could otherwise. When working on a level with simple texturing and construction, we could make drastic changes to the layout of the level, changes that became very time consuming once real texturing and detail was in place. If we had a new gameplay idea that we wanted to try out the best way to approach it was to build a series of fast orange maps only starting to integrate real art assets as we became confident in the space and the gameplay in it."
- David Sawyer



Hammer Level Editor



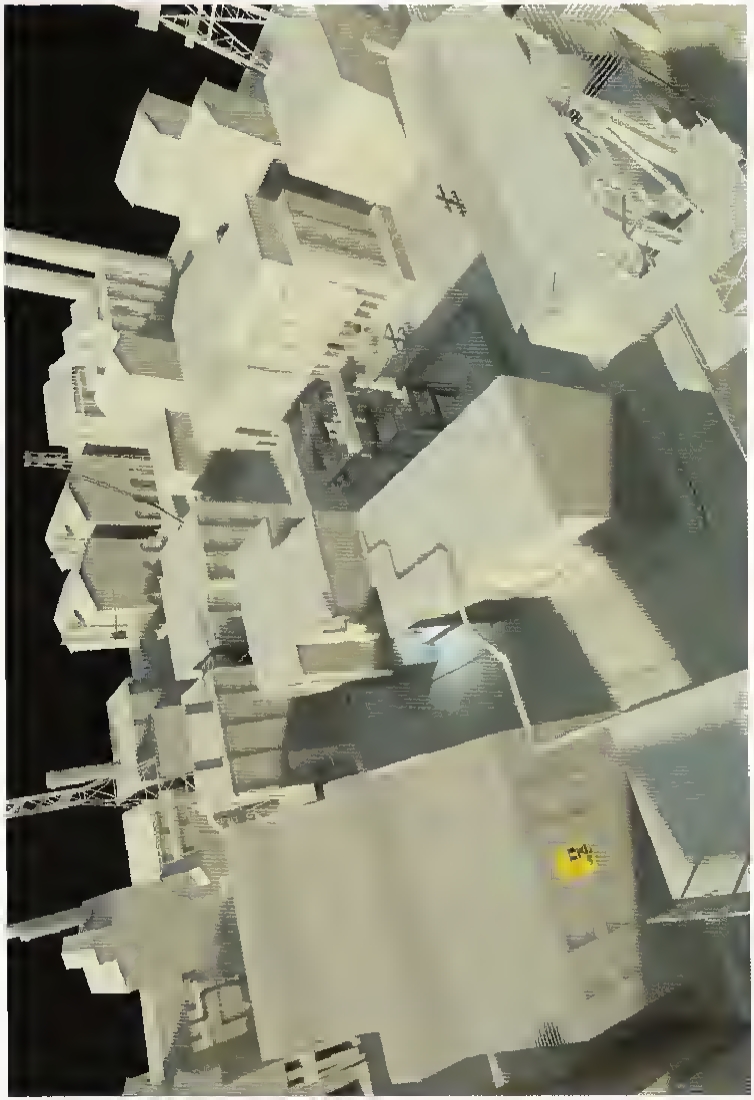


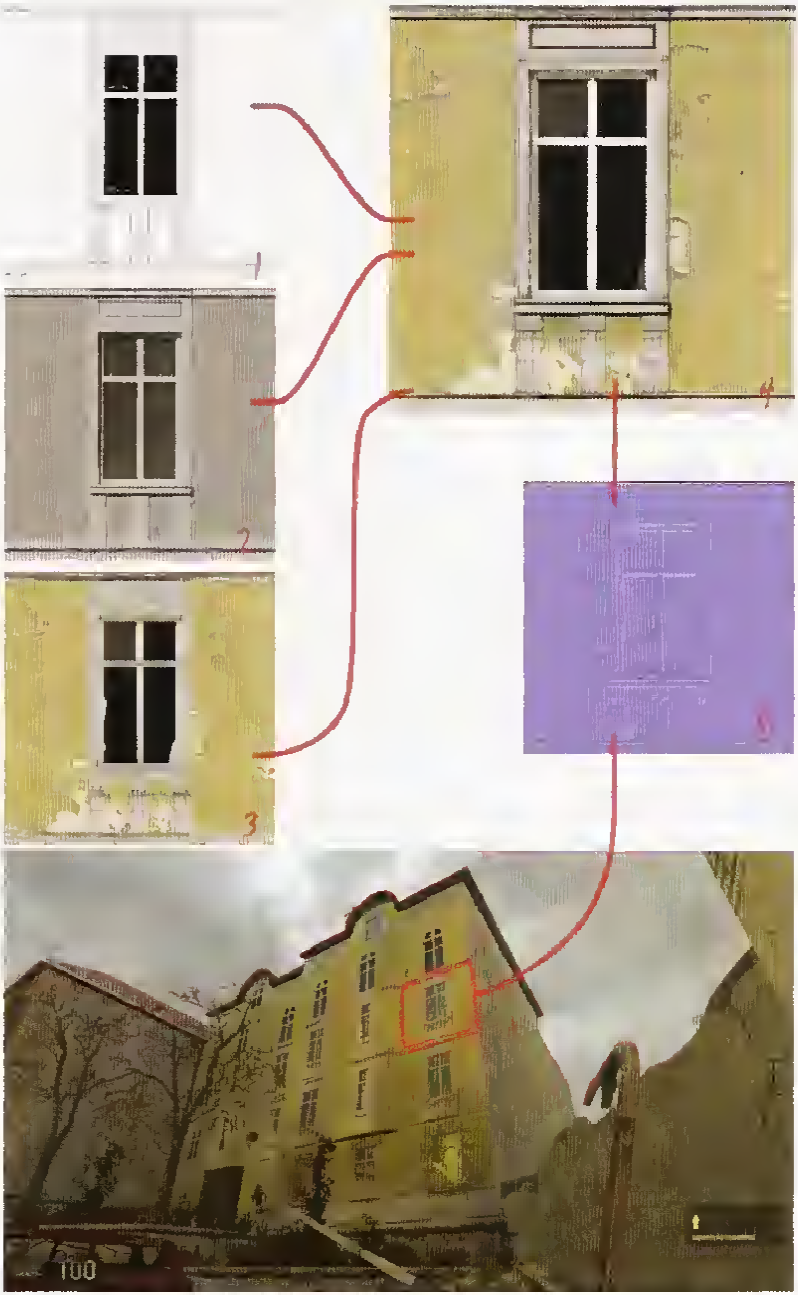
100
60

"We worried about the crate cliche a lot during development. Finally we gave up and one of the first things you see when you start the game is a crate. We figured that this was the Old Man Murray equivalent of throwing yourself to the mercy of the court."
– Gabe Newell

Doctor Kleiner's lab was first fleshed out in the engine and then concept models were painted over screenshots in Photoshop.

Valve designers use this prop back lot known as the "Combine Zoo" when placing models

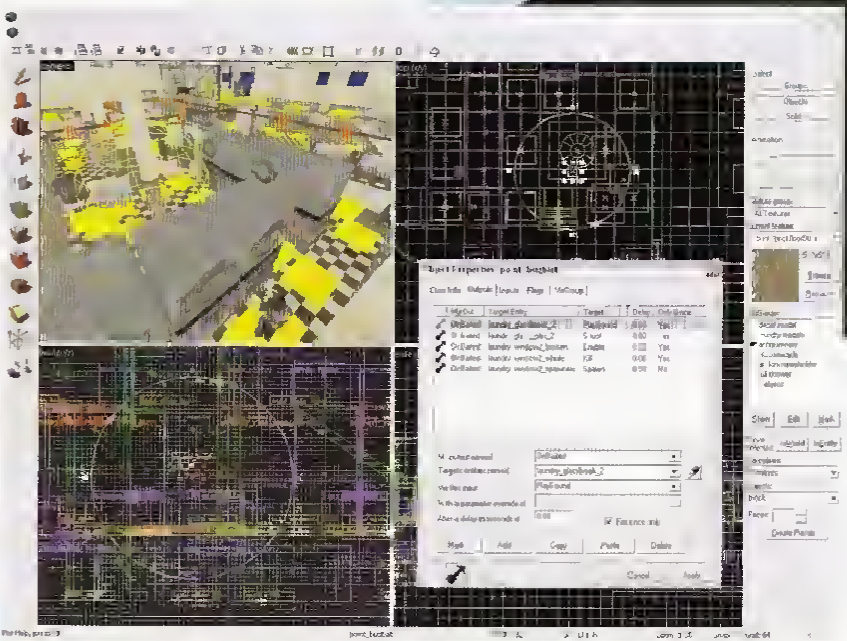




The World Texturing Process
Jeff Ballinger

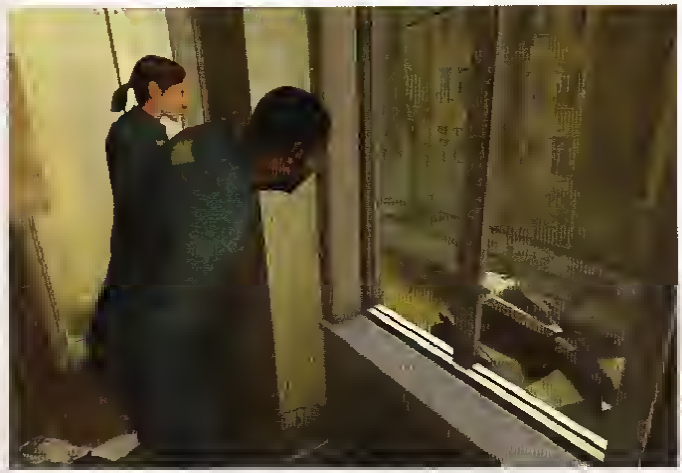
.01 Artists first establish measurements and placement
.02 Next they build the texture in 3-D and render out shadows, values, and shapes
.03 Then they add color information, by either painting it in or using photos from the reference set
.04 This gives the final texture
.05 Finally, normal maps are added to create bumps

"Before I start building a level using the editor, I try to absorb as much information as I can about the space I need to build. This information usually comes from looking at collected images, books on architecture or photography, watching movies or documentaries, or going to a location to take pictures. Once I feel I have enough information about an area, I'll begin a layout by either a rough sketch on paper or by blocking out a rough layout in the editor. When I'm finally ready to start working on a level in the editor, I usually begin building the entire layout rather than building one area at a time, or room by room. I work from big to small, meaning I think of the overall big picture of the entire level first, then slowly refine and add the finer detail later. First, I work on space and composition, and I don't worry about final texturing, geometry, or lighting. As the level matures, I work on it iteratively, breaking down the space into smaller problems. I have found using this approach to be the most productive because problems with the design can easily be solved or changed along the way before putting a lot of time-consuming effort into polishing or finishing areas that may need to be reworked or a have a design change before the level is complete."
–Aaron Barber



Final Polish

In the final phase of production, the art team would take each map for art and design tuning. At this point the levels had gone through numerous gameplay iterations, and external playtest feedback had been integrated into the spaces. The team also ensured overall consistency by evaluating textures, props, lighting temperature and intensity—polishing up virtually every visual element of the level.

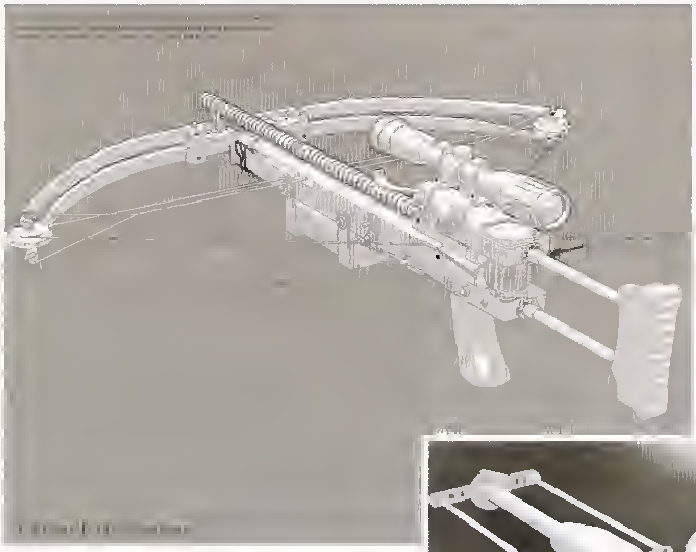


Tenement Block

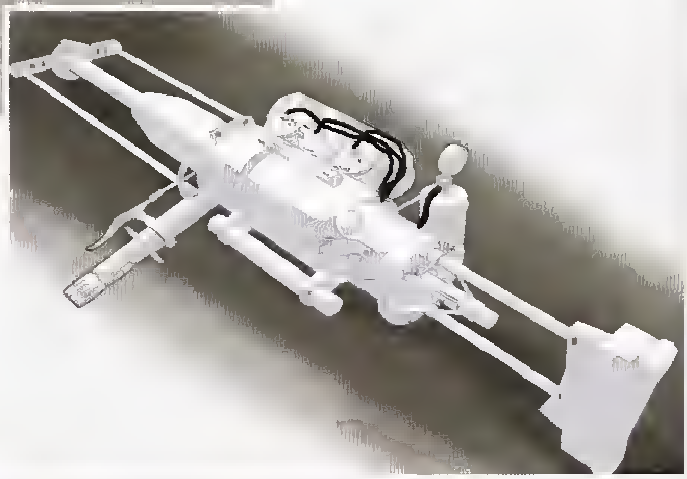
Playtests are an integral part of the Valve development process. As soon as possible, every scenario in the game was prototyped and playtested with a developer watching the playtester. As development continued, each design decision was constantly validated by performance in playtests. Playtesters were recruited from team members working on other parts of the game, from employees working in other departments at Valve, and through various contacts outside the company. Designs that were not successful in playtests got changed. This is an iterative process that ensures the end product is something players will enjoy.

"The raid on the Tenements was the biggest challenge to build in the Trainstation maps. Our first fear, that players wouldn't realize they were supposed to run, turned out to be no problem at all. Playtesters would hear the citizens scream, see the first Metro Cop charge into the room, and turn and run immediately, often never looking back to see the Metro Cop knocking down the citizens. When the Metro Cops charged up the stairs in front of them, blocking the route they were intent on taking, we had multiple playtesters scream and panic, spinning on the spot looking for the way out. Most of our playtesters made it out alive the first time, and yet felt like they only just made it."
- Robin Walker

"We decided to add the Tenement apartments area because while we already had assets for the City 17 courtyards and the rooftops that connected to Dr. Kleiner's laboratory, we didn't have a solid connection between them. Since we wanted to end up in the attic space at the beginning of the rooftops, adding an interior building space seemed the right choice. The whole idea was that the citizens of City 17 would be wary of speaking to you on the streets under the watchful eye of the Combine, but they would speak more openly in the apartments where they live. The player would get further insight into the plight of the citizens of City 17, and a peek at life under Combine law." - Jeff Lane



Two conceptual designs for a resistance built "crossbow" It was designed to shoot a physically simulated bolt that allows the player to pin enemies to walls



"The Headcrab canisters are an element that originally had a larger part in the story of *Half-Life 2*. The plan was that you would eventually arrive at the large artillery piece that the Combine used to launch the canisters. For various reasons that were not pursued, the canisters themselves remained. The canisters were used as a weapon by the Combine to cleanse an area of resistance, as well as make it uninhabitable." - Jeff Lane

Physics

The Source engine s physics system, headed by *Half-Life 2* project lead Jay Stelly is integrated into every aspect of the game Drop a heavy object onto someone s head and it hurts, scrape a metal piece against concrete and it makes appropriate sounds and sparks Bodies fall as they should Players tend to forget that it's a simulation as the physics seamlessly blend into the game and obey virtually every expectation, almost fading into the background in its completeness This effect of overall immersion is something that can only be properly appreciated in its absence

"I was watching a playtest, and they were just messing around, punting a tire swing back and forth trying to get it to loop over the top They had it almost there but not quite so they ran forward to hit it again but missed and the tire ended up landing on their head killing them They just sat there laughing, thinking it was the greatest thing in the world It wasn't so much that the tire had killed them, but they had done it themselves, they had found a clever way of interacting with the world and the game had let them do it. It wasn't really so much about realism as it was about discovering how the game and the world were reacting to them in ways that they hadn't seen before. then finding out there were surprising and interesting consequences."
Jay Stelly

"There are a number of things in the game that began life as a bug One example is the helicopter's mega-bombing run' that happens in the final battle in the reservoir While coding the helicopter's bull-rushing behavior (where it gets a bunch of distance from the player, turns around starts shooting, and rushes toward the player), I accidentally had it dropping bombs instead of firing shots It dropped so many bombs that it brought my machine to its knees, but the idea was so cool that I decided to make a version of it that could live within the performance budget." - Brian Jacobson

"Continual design iteration driven by experimentation and observation of test subjects playing the game is a big part of our process. One of the things we discovered during the development of Ravenholm was that people were having much more fun bringing Grigori's traps to the Zombies rather than the other way around. From this we derived the saw blades and explosive canisters littered around Ravenholm, a result we could not have predicted at the start." - Tom Leonard

"Puzzles are really useful devices for getting players to calm down after an exciting part of the game and focus on the details of the world around them. We build all this detail into the world and in many cases the player whizzes through it at a breakneck pace. Puzzles and 'down time' are like a sorbet in a multi-course meal, in that they allow the player to better appreciate whatever action comes next. Without those pacing contrasts, everything becomes a numbing blur of relentless action, which winds up being fatiguing and not very fun after a while." – Josh Weier

"I remember a specific moment that had a lasting effect on the design of the game. Kelly Bailey was playtesting a section of the Coast maps, and was in the last map before Nova Prospekt. He was terribly low on health and barely survived until he reached the next point of resupply. For the most part, this was something we had tried to avoid in the design up to this point. However, after that playtest, we all agreed that the added tension was incredibly powerful. From then on, the issue moved up our priority list. We took out lots of health and ammo that we had been 'bread-crumbing' in front of the player, and spent more time adding larger caches that were farther apart. The result was a lot more white-knuckle action, with every ammo cache seeming like manna from heaven." - Jeff Lane

"There was a period of time during playtests where the player was able to injure friendly civilians. At the same time, we had places in Coast where we needed to get the player out of the Buggy to experience a piece of detailed content. One of our first attempts at turning the player out of the Buggy was to have a citizen run out onto the road and wave the player down, yelling, 'Over here!' You can guess what came next." - Charlie Brown

"As with *Half-Life 1*, we crafted a pretty deliberate path through the world, but we also were careful to preserve the illusion of nonlinearity by sprinkling in rich, but optional content—optional in that players could either miss it, or choose to move past it. There's a higher cost to building your world this way, but it really pays off in immersion and richness by giving players the ability to explore and reveal more of the world when they want to, peeling back new layers in the experience, onion." - Dave Riller

Unlike *Half-Life*, it was decided to have no Hazard Course in *Half-Life 2*. Instead, to sustain the player's immersion in the world, training was designed directly into the progression of the game. Players discover that every basic skill is taught in a very unobtrusive way, especially early in the game. This includes simple challenges, like stacking the crates to get out of the window in the Trainstation, to more complex ones, such as the Antlion Pheropod "Bugbait" training in the Coast section. The difficulty of subsequent tasks could then be increased knowing that the player had been taught the mechanics they needed to succeed.

"We wanted to have citizens lead the player somewhere, so we set it up so they would tell the player where to go, then set off ahead. If the player fell behind, the citizen was supposed to turn around and remind the player by calling out, "Lets go!" The first time we playtested, we had a bug where the leading citizen was a little overzealous in his desire to lead the player, and repeatedly called out, "Let's go!" over and over again whenever the player wasn't right behind him. The playtester kept saying "I know! All right! I'm coming! Jeez!", while behind him we were all trying unsuccessfully to stifle our laughter. From then on, it was a common occurrence around the office to hear someone repeatedly yelling, "Let's go!" when waiting for someone." - Adrian Finol

'One of my favorite things to do with the Gravity Gun is to grab and hold Manhacks with it and then run around using the spinning Manhack as a crude chainsaw. It's really useful in some of the prison turret defense areas where there's a lot of Combine Soldiers coming at you, and manhacks dropping down from above. It's also pretty useful to pull health and ammo to you without leaving cover. - Robin Walker

'As players fought their way through the street-war maps, we wanted to make sure they knew what they were fighting for. We decided to add a scene with citizens pulling down a monitor while Breen was making a speech. Stopping combat to do this, even though the war was not over, would send a signal to the Combine, and to the player, that the citizens would stop at nothing to reclaim City 17.
- Doug Wood

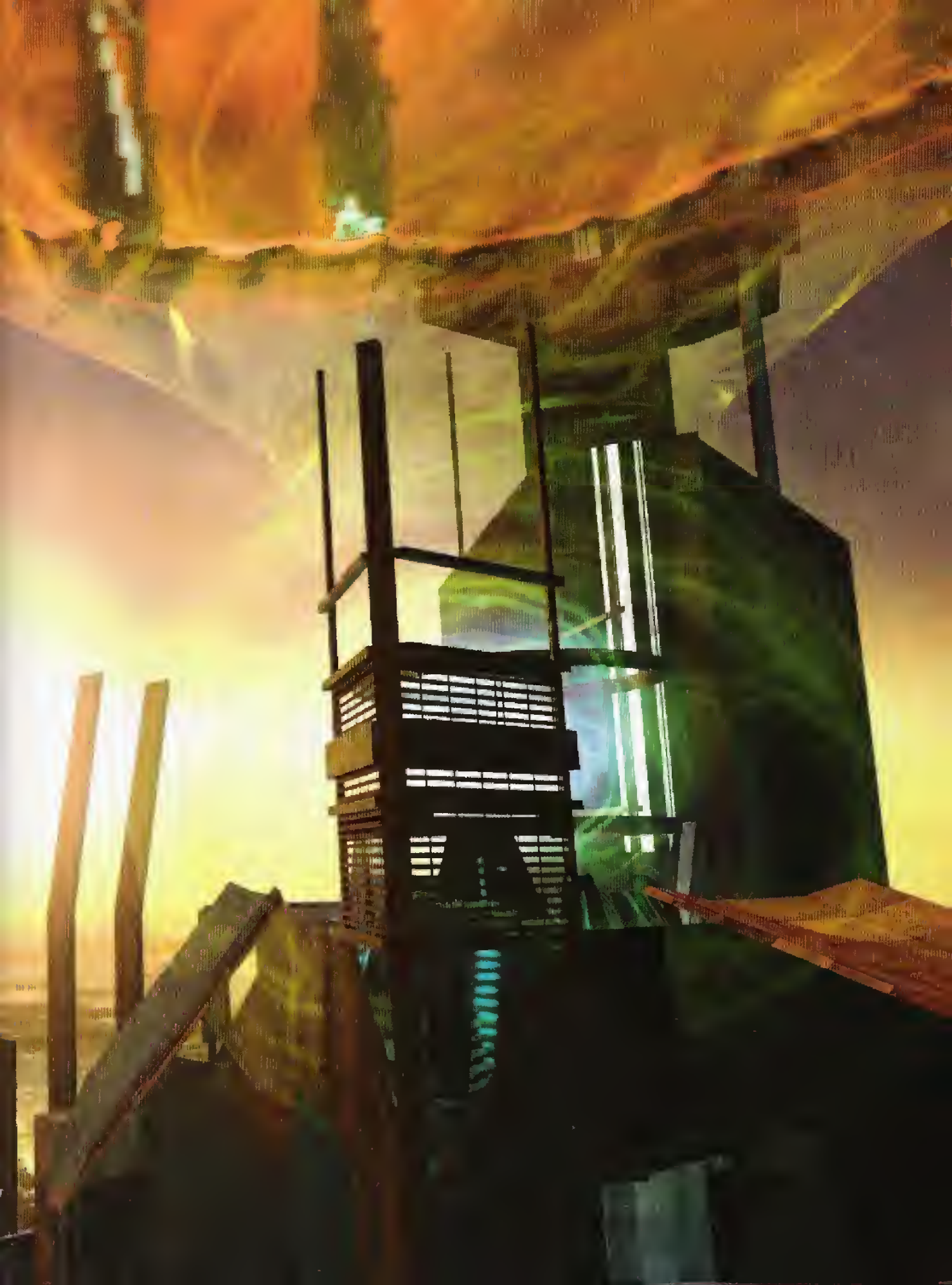
"One of the interesting differences between *Half-Life 1* and *2* is that with the first, we were largely unknown—often viewed as underdogs—and public expectations were low-to-none. With the critical success of the first game, all that changed. With *Half-Life 2*, expectations went out of control, even on our end. It became a real source of anxiety in trying to design and build the game that would live up to that new level of expectation; we had become our own worst competition." - Dave Riller

"The goal, when we were talking about *Half-Life 2* among ourselves, which is different than how you publicly talk about it, was that it simply had to be the best PC game of all time. The reason you talk about it in those terms is that people on the team need to know you're serious. Those aren't just made-up words. It's not a marketing slogan. It's what we actually need to achieve." - Gabe Newell

"The process of creating music for *HL2* was a lot of fun for me. Most of the music was created in my office using software to simulate a recording studio and instruments. For the most part, I try to think of a few words to describe a track, and keep that description in my head while I work on it. For instance, I might want 'fast action, suspense' or 'quiet exploration, mystery' or 'slow, disturbing, dark.' Then, each time I work on a track, I'll keep checking back to that description. It's easy for me to happily wander for a very long time while composing without reaching an end point, this method helps keep me focused and converging."
- Kelly Bailey

Everything about the Citadel is invasive—it's digging into the ground beneath City 17 while its articulated walls rake outward, demolishing everything in their path. So you come out of a truncated sewer pipe that's now hanging out into the chasm that the Citadel created. Aaron Barber created the vista that you see when you first emerge from the pipe to see the Citadel looming above you and the colossal rift that it's created, then Jeff Lane and I added the precarious cliff crawl leading in. Part of our process involves handing things around so that eventually many people contribute to each encounter in the game. Originally we had citizens up on the street level shooting RPGs at the Citadel, and we were planning to have an all-out assault on the Citadel underway. But at a certain point it felt better to have the player all alone entering the Citadel, with the only sound being the eerie creaks and groans of the Citadel itself. It was more in keeping with the classic quest theme of a lone knight entering the fortress of the enemy, which was the feeling we were trying to evoke." - David Speyrer

"*Half-Life 1* gave us this great legacy to live up to. Have we done that, have we lived up to what everybody wanted out of the sequel to the game? I think we have. What makes me happy is when we sit people down who have high expectations for the game and they play it and afterward they say 'Wow, that's great. That exceeded my expectations.' That's what we're looking for. Does it exceed their expectations? Because if it does, then I think we've succeeded in what we set out to do." - Gabe Newell



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